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BIRDS FROM LIBERIA

With a Discussion of Barriers Between
Upper and Lower Guinea Subspecies

AUSTIN L. RAND

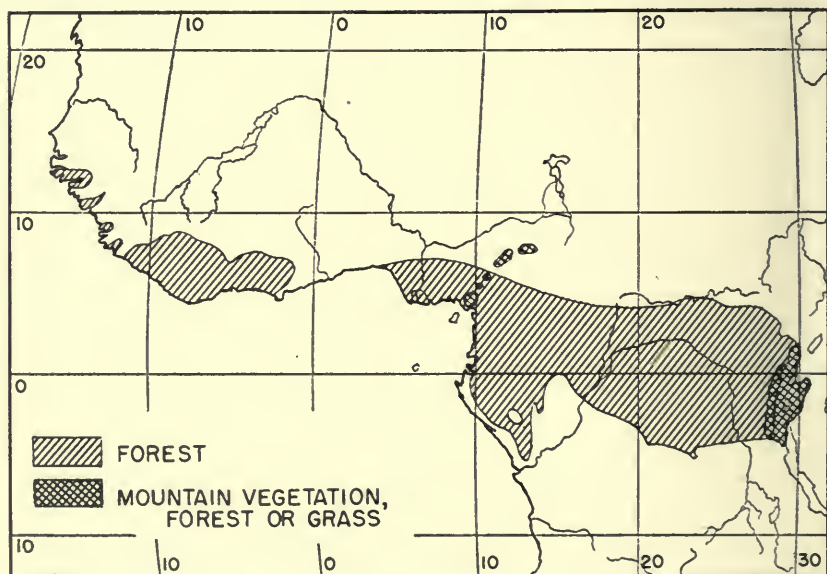
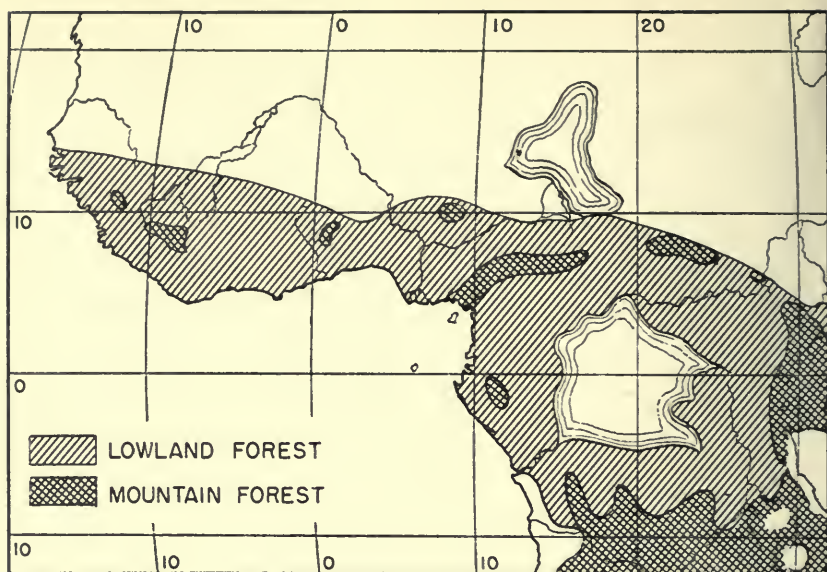
FIELDIANA: ZOOLOGY

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MAP 2. WEST AFRICA

Upper: Chapin's concept of the extent of mountain vegetation in the Pleistocene. In the wet period ending some 22,000 years ago the mountain vegetation was probably continuous from West to East Africa, completely separating the lowland forests of Upper and Lower Guinea.

Lower: Lowland rain forests of today (after Chapin), showing the gap between the forests of Upper and Lower Guinea. This gap is less than 22,000 years old, perhaps only 12,000.

BIRDS FROM LIBERIA

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Upper and Lower Guinea Subspecies

AUSTIN L. RAND

Curator, Division of Birds

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Birds from Liberia

INTRODUCTION

The present report is based on a collection made in two localities in Liberia, in the vicinity of the Firestone Plantation, 35 miles from Monrovia, and at Ganta, near the French Guinea border, by Mr. Harry Beatty in 1947 and 1948. Chicago Natural History Museum received 597 specimens, and Mr. Boardman Conover, Research Associate, received an additional 82 specimens of game birds. The collection is particularly important, as it contains nearly 60 species or subspecies previously unrepresented in the Museum collections.

I am indebted to the late Boardman Conover for the privilege of reporting on the specimens in his collection, and to Dr. J. P. Chapin, who kindly compared certain specimens with material in the American Museum of Natural History, in New York, and who went over the collection with me, discussing various points.

The data on the avifauna of Liberia were summarized by Allen (1930), and by Bannerman (1930-49). These volumes have greatly facilitated my work on the collection. Since 1930 the only paper on the birds of Liberia appears to be that of Bouet (1931).

The Republic of Liberia, in West Africa, extends along the coast of Upper Guinea between Sierra Leone and the Ivory Coast with a coast line of 350 miles, and extends inland at most about 170 miles to French Guinea. It has an area of about 40,000 square miles. The rainfall is heavy, and the region probably is, or was originally, largely forested.

The fauna is that of the Upper Guinea Forest District. Though the rainfall decreases somewhat as one goes inland the effect of the Upper Guinea Savanna District, which lies farther inland, is little evident in the fauna.

In 1930 Allen listed a total of 281 species or subspecies for Liberia. Four of these were duplicated, so that the number of forms listed by him was actually 277. In 1931 Bouet added fifteen species to the list, Bannerman adds one, and the present collection adds

seventeen more, making the total number of species and subspecies now listed from Liberia 310. One new subspecies from this collection was described elsewhere. None are described in the present paper.

COLLECTING STATIONS AND ROADS

The following notes were supplied by Mr. Beatty:

The collections were made in the vicinity of the Firestone Plantation and at Ganta chiefly in 1947 and 1948, during Beatty's residence in Liberia.

The climate is hot and humid. Harbel, the wettest station, receives 130 inches of rainfall annually. The rainy season commences in July and tapers off in November; the driest months are January, February, and March.

The post office of Firestone Plantation is at Harbel, where the plantation touches the Farmington River. Harbel is thirty-five miles east of Monrovia and five miles from Port Marshall. The region collected included the belt of savanna brush country that parallels the coast and extends at least from Monrovia to Port Marshall, and the forest, second growth, and cleared land farther inland.

The savanna brush country is rolling lowland covered with yellow-brown grass and dotted with stands of impenetrable brush that usually indicates the course of a stream. There are scattered islands of forest. In depressions the streams fan out to form marshes supporting dense thicket vegetation or saw grass, dwarf palms, and lush, rank herbaceous plants, with abundant bird life.

Inland from the savanna the terrain is rugged. There are sharp defiles traced by streams that fan out occasionally to form marshlands in which bird life is plentiful. Many of these streams are seasonal, being waterless during the dry period. Three swiftly flowing rivers drain the area: the Baa, the Du, and the Farmington. An artificial lake (referred to as the "Lake") floods about ten acres of marshland and is attractive to many species of birds. Much of the country is covered with a planted forest of rubber trees, in which few birds are found. There are, however, areas of second growth, large swamps, and isolated "islands" of the original forest where the wild life has taken refuge.

Ganta is about 200 miles by road northeast from Monrovia, and about one mile from the French Guinea border, which lies

across the St. John River. This river and several smaller streams drain the area, most of which is farmed, although there are vast stretches of thick second growth of varying ages. Except for occasional "islands" much of the original primary forest lies in remote spots.

One such area lies ten miles east of Ganta, where a range of rugged hills covered with a belt of primary forest several miles wide cuts across the country for some twenty miles. The undergrowth varies from open to dense. Troops of monkeys scamper through the treetops, and chimpanzees are frequently heard, but the bird life is scattered. While collecting in this forest, where birds, once shot, were difficult to find, a small native dog was used to locate the dead birds. This dog was also useful in flushing forest guinea fowl that otherwise would have remained undetected in the dense undergrowth.

An excellent dirt motor road starts at Monrovia, winding through lowlands and mountains across the interior, until the picturesque native town of Sanoquelli is reached. A main branch road under construction will connect Ganta with the important interior town of Tappita to the south. Travel by trail still is the only manner of exploring the hinterland. It is now possible to enter French Guinea by motor road from Ganta via ferry across the St. John River.

BARRIERS, PAST AND PRESENT, BETWEEN UPPER AND LOWER GUINEA BIRDS

The main area of the great lowland rain forest in Africa, the Lower Guinea forest, centers around the Upper Congo River, with a westward extension, the Upper Guinea forest, along the north side of the Gulf of Guinea to about Sierra Leone. There is but one gap in this forest, between Lagos, Nigeria, and Accra, Gold Coast, where the savanna of the interior reaches the coast. As would be expected, the birds of the Upper and Lower Guinea forests have much in common, but there are striking differences.

Occasionally one Lower Guinea genus is represented in Upper Guinea by another, as in the case of the two genera of forest Guinea fowl, *Agelastes* and *Phasidus*; sometimes a genus has one species in Upper, another in Lower Guinea, as with the rock fowl, *Picathartes gymnocephalus* and *P. oreas*. In many cases—Bates (1931) listed 92 instances—the Upper and Lower Guinea forests have

different subspecies, or representative species so similar that they could be called, on present knowledge, species or subspecies. In some cases, as in that of the black and red weaver bird, *Malimbus rubricollis*, the difference is simply one of a difference of shade of color; in others, such as the hornbill, *Tockus fasciatus*, the difference is more trenchant, in this case the difference between having the two tail feathers next to the outermost pair all white or only tipped white, and the bill marked with red or black.

The Upper and Lower Guinea representative forms apparently do not always meet; there is sometimes a gap of apparently habitable forest where no representative of a species has yet been found, as with the ibis, *Lampribus olivaceus*, the rail, *Canirallus ocularis*, and the lovebird, *Agapornis swinderniana*. There is always the possibility that the gap is due only to lack of records.

The differences between the bird faunas of these two areas are so pronounced that it has long been customary to consider the two forests as different zoogeographical areas: The Upper Guinea Forest District and the Lower Guinea Forest District (Chapin, 1923; 1932, p. 90). The dividing line between the two faunas, as often happens, is not sharply cut. Some Lower Guinea forms go as far west as the Gold Coast; some Upper Guinea forms go as far east as Mount Cameroon. Varying weight has been given to various points by different authors, resulting in the assignment of differing boundaries to the faunal areas in this region. Chapin (1923; 1932, p. 90) considers that the Lower Guinea Forest District includes the forest of Nigeria, and Bates (1931) follows this view. On the other hand Reichenow (1900, p. lxxxviii) puts the western limits of Lower Guinea at Mount Cameroon and includes the Nigerian forests in Upper Guinea. Bannerman (1930, p. xxxvii) also includes the forests of southern Nigeria in Upper Guinea, at least as far as the Cross River.

This divergence of opinion as to where to draw the line between two faunas, its location varying 500 miles, is not surprising, and Chapin (1923, p. 123) has well expressed part of the problem as follows: "... the change is far more gradual than a hard black line would indicate. A broader band of color, fading imperceptibly toward its edges, might carry a truer picture of actual changes." However, the over-all picture in West Africa indicates that there are two main areas where there are pronounced changes, one on each side of Nigeria.

This is well illustrated by the following data, re-evaluated from the list of 92 representative forms prepared by Bates. The Upper

Guinea forms that reach eastward only to the Gold Coast area, and are replaced in Nigeria by the Lower Guinea forms, number about 17. The number of Upper Guinea forms that extend into the Nigerian forests, sometimes as far as Mount Cameroon (though Bannerman says many Lower Guinea forms pass Mount Cameroon and go as far as Cross River) is much larger, about 34. This indicates that if Nigeria is to be assigned to one or the other district, it should be included in Upper Guinea, as Reichenow and Bannerman have done.

The situation that exists where the Upper and Lower Guinea forms meet, especially when they are very different, has been determined for a few species but adequate material is lacking in many cases. In some cases, as in those of the weaver bird, *Malimbus rubricollis*, the sunbird, *Anthreptes collaris*, and the bulbul, *Andropadus virens*, the Nigerian specimens are intermediate, perhaps over a wide area, and may represent a clinal change. In some cases the area of intergradation is known to be narrow, as with the weaver birds, *Spermestes bicolor* in the Mount Cameroon area and *Pholidornis rushiae* in western Nigeria. In some cases both Lower and Upper Guinea forms as well as intermediates have been recorded for an area in Nigeria, as the roller, *Eurystomus gularis*. In a few cases, as in that of the sunbird, *Cinnyris superbus*, my material has proved not to be the form expected on Bannerman's findings. Additional study may show that the type of meeting in such cases is no smooth intergradation, but that it includes a mixed population; or it may show that two forms, now called subspecies, actually overlap at the edges of their ranges as species.

Certain mixed populations, suggesting hybridization at the meeting zone of two barely separated species, are known, such as the barbet, *Tricholaema hirsutum*, with such a population from the Gold Coast to the Niger Delta; and the weaver bird, *Ploceus albinucha*, with such an area in the Gold Coast.

Another case, of two rather different-looking species with apparently almost mutually exclusive ranges, is provided by the weaver birds, *Ploceus nigerrimus* and *P. castaneofuscus*. Bates (1931, p. 276) considered them as representative species, the females very similar, but the male of the former all black and of the latter black and chestnut. Bannerman (1949, pp. 53, 60) gave the ranges as follows: *P. nigerrimus*, common from North Angola to Cameroon, with one record for Nigeria (Oban); and *P. castaneofuscus*, fairly numerous from Sierra Leone to Nigeria.

Over the whole extent of the Upper-Lower Guinea coast the rainfall is heaviest in the Cameroon-Nigeria area and in Liberia, with a drier area between, in the Gold Coast. This dry region is so pronounced that the savanna area of the interior comes through to the sea, making a gap in the forest. But the climate of the forests is very similar, and the many types of characters distinguishing the subspecies do not appear to be adaptations to environment. They involve pattern, color, and size, and Bates (1931) made only the generalization that birds of Upper Guinea tended to be plainer-colored, with less ornamentation, and with a slight tendency toward smaller size. Apparently the differentiation that has taken place between Upper and Lower Guinea birds is not simply a response to environment. Neither do all the areas where changes occur coincide in a manner to suggest one direct environmental control. Rather, the patterns given by the various representative forms indicate that more than one isolating factor is or has been in effect. Bates noted the many cases in which the limits of the subspecies coincided with the gap in the forests between Accra and Lagos, and his conclusion was that this gap provided sufficient isolation to forest species each side of it to account for the differentiation in much of the two faunas. However, Bates also mentioned that in some species the change from one subspecies to another occurred farther east, near Mount Cameroon, and for this he had no explanation.

From my tabulation, while the Gold Coast savanna gap in the forest could account for some cases, there are about twice as many that bridge the gap and meet between there and the Mount Cameroon area. Some further factors must be sought.

Chapin (1932, p. 267) has mentioned that a former submergence of the land near the present Niger Delta might account for the break between the Upper and Lower Guinea forest. However, another apparently unrecognized factor may have played an important part. Chapin's map of Africa in the Pleistocene (op. cit., p. 376) shows that with the greater extent of the rain forest in that period the mountain vegetation was also more extensive and extended lower on the ridge that runs northeast from Mount Cameroon well toward the body of water that occupied the site of the present, and much smaller, Lake Chad. The rain forest extended as a narrow belt between the mountain and Lake Chad, and presumably in a very narrow belt along the coast where Mount Cameroon rises close to it. But for the rest the mountain vegetation, which may have descended as low as 3,000 feet or lower, was a barrier that probably few birds crossed.

The data on climatic changes and distribution brought together by Moreau (1933) indicate that the mountain forests and their faunas in Africa may have been even more extensive than Chapin's map indicates and may have formed a complete barrier between the Upper and Lower Guinea forest. Moreau's data are particularly interesting, as they provide an estimate of the time element. The Gamblian phase, which appears to be the last wet period in Africa that caused important changes in the extent of the mountain forests, came to an end about 22,000 years ago. Thus, the representative lowland forms that now meet in the Mount Cameroon area may be more than 22,000 years old. Even now the gap between Mount Cameroon, which stands near the edge of the sea, and the mountains to the northeast is only about sixteen miles wide, with a 600-foot elevation, and a little farther the slopes rise to 1,500 feet. The 3,000-foot contours are about fifty miles apart. The present connections between the Cameroon and Nigerian forests are largely through this narrow gap. In earlier times it may have been smaller, or entirely closed. Probably this Cameroon highland with its earlier, more extensive forest was the important factor in providing the isolation that enabled many Upper and Lower Guinea subspecies to develop. It is possible that even now the 600-foot ridge across this gap may be a partial barrier to some species. This barrier, even if incomplete, would allow the forms on each side of it to evolve independently. With the gradual change from earlier conditions to those of the present, the barrier became less effective and more easily crossed. The differentiated parts of the species met again, with a freer exchange of individuals. One or the other might have been dominant and extended its influence into the range of its neighbor.

As the climate became drier, the savanna pushed coastward in the Lagos-Accra area and a second, more recent gap in the distribution of forest species occurred, with a further effect on speciation. This, from Moreau's data, occurred less than 22,000 years ago, and the populations that evolved into subspecies each side of the gap would be less than 22,000 years in age, perhaps only 12,000 years (see Map).

The Lower Guinea forms have, in some cases, penetrated some distance into Nigeria instead of stopping short at Mount Cameroon, where the postulated barrier was effective. This is the intrusion of a form from the larger Lower Guinea forest area to the smaller Upper Guinea forest area, as might have been expected.

SUMMARY

The present patterns of the distribution and the meeting places of the Upper and Lower Guinea lowland forest subspecies suggest that two barriers have been operative. It seems that an earlier barrier of the Mount Cameroon-Cameroon Highlands, with their more extensive mountain vegetation, may have been one such barrier that still in its present reduced extent may have some effect; the other, later barrier is the more recent gap in the forest in the Lagos-Accra area and this still exists. An idea of the age of these subspecies is possible. Some of the forms that meet in the Mount Cameroon area may be at least 22,000 years old; the forms that are a result of the Lagos-Accra gap in the forest may be less than 22,000 years old, and perhaps less than 12,000 years old.

List of Species

Family PHALACROCORACIDAE

Phalacrocorax africanus africanus Gmelin

Pelecanus africanus Gmelin, 1789, Syst. Nat., 1, pt. 2: 577—Africa; restricted to White Nile District (Grant).

Firestone Plantation: 2 males, 1 female, 2 sex?; April 30–June 15, 1948.

Wing: males, 216, 219; female, 215; sex?, 214, 217 mm. Tail: males, 159, 160; female, 156; sex?, 160, 165 mm.

None of these birds are in the black-bellied breeding plumage, but in two adults the lower parts are plentifully mottled with black feathers, with others growing in, and the wing or tail molt has just been completed.

Field notes.—The long-tailed cormorant was uncommon at the Firestone Plantation; several were seen on the "Lake" and others noted on the Farmington River from April to July (H.B.).

Family ANHINGIDAE

Anhinga rufa rufa Daudin

Plotus rufus Daudin, 1802, Buffon Hist. Nat., ed. Didot, Quadr., 14: 319—Senegal.

Firestone Plantation: 1 sex?; April 23, 1948.

Wing 339 mm.

This is a fine adult specimen.

Field notes.—Only one pair of darters was seen, one of which was secured (H.B.).

Family ARDEIDAE

Casmerodius albus melanorhynchos Wagler

Ardea melanorhynchos Wagler, 1827, Syst. Av. Addit., last page—Senegambia.

Firestone Plantation: 1 male; May 5, 1948.

Wing 364 mm.

This specimen has no long ornamental plumes.

Field notes.—At the Firestone Plantation the great white egret was uncommon; a few frequented a marsh for a few days in August, 1947. The only other record was the specimen taken the following May on the "Lake." (H.B.)

***Egretta garzetta garzetta* Linnaeus**

Ardea garzetta Linnaeus, 1766, Syst. Nat., ed. 12, 1: 237—Orient.

Firestone Plantation: 1 male, 1 female, 1 sex?; May 5, 7, 1948.

Wing: male, 275; female, 274 mm.

The female has the long nuchal plumes, and long, somewhat worn and soiled aigrettes; the male has some long ornamental dorsal plumes, much worn, and no nuchal plumes; the sex-questioned specimen lacks long ornamental plumes. None shows wing molt.

Though the little egret is recorded as widespread in West Africa, both as a winter visitor and as a resident, it has apparently not hitherto been recorded from Liberia.

Field notes.—The little egret was evidently rare in Liberia; a flock of eight was seen on the "Lake" from April to July (H.B.).

***Bubulcus ibis ibis* Linnaeus**

Ardea ibis Linnaeus, 1758, Syst. Nat., ed. 10, p. 144—Egypt.

Ganta: 1 male, 4 females; February 27, March 28, 1948.

Wing: male, 244; females, 237–253 mm.

All of these specimens show wing molt, and buffy pink feathers are growing in on the crown; none has any ornamental plumes on the back.

Though the cattle egret is a widespread species in West Africa, it was not included in Allen's 1930 list, and apparently the first record for Liberia is Bouet's (1931, p. 367). Bouet recorded it only in the dry season, and the dates of our present specimens are in agreement with this. Presumably it nests farther north.

Field notes.—At the Firestone Plantation the buff-backed heron arrives during November and leaves in April. Seemingly it is attracted to the vicinity of native villages where cattle are herded, and the birds can be seen capturing insects flushed by the roving herds of cattle. These herons are not molested by the natives, who believe evil comes to anyone who partakes of the flesh.

At Ganta the species was common from January to April (H.B.).

Butorides striatus atricapillus Afzelius

Ardea atricapillus Afzelius, 1804 (1805), Kongl. Vet.-Akad. Nya. Handl. Stockholm, 25: 264—Sierra Leone.

Firestone Plantation: 1 male adult, 1 female adult, 1 female sub-adult, 2 female immatures; April 23, June 16, 1948.

Ganta: 1 female immature; April 3, 1948.

Wing: male adult, 170; female adult, 178 mm.

Field notes.—The green-backed heron was uncommon at Firestone Plantation. One was flushed occasionally from streams flowing into swamps or cultivated land (H.B.).

Ixobrychus minutus payesii Hartlaub

Ardea payesii Hartlaub, 1858, Jour. Orn., 6: 42—Casamanse River, Senegal.

Firestone Plantation: 2 males; May 12, 14, 1948.

Wing 131, 139 mm. Wing tip¹ 34, 41 mm.

One specimen is in full adult plumage; the other has a few brown feathers mixed in the black of the back.

Field notes.—At the Firestone Plantation several little bitterns were scared up at close range from the dense saw grass in which they like to take cover by running. Individuals were observed from April to July (H.B.).

Ardeiralla sturmii Wagler

Ardea sturmii Wagler, 1827, Syst. Av., *Ardea*, sp. 37—Senegambia.

Firestone Plantation: 1 female immature; May 4, 1948.

Wing 149 mm.

Field notes.—The African dwarf bittern was rare at the Firestone Plantation, where it was seen from April to July. A few were flushed from the tall saw grass bordering the "Lake," and another was seen in an abandoned rice farm (H.B.).

Family THRESKIORNITHIDAE

Lampribis rara Rothschild, Hartert, and Kleinschmidt

Lampribis rara Rothschild, Hartert, and Kleinschmidt, 1897, Nov. Zool., 4: 377—Denkera, Gold Coast.

Ganta: 1 female; January 30, 1948.

Wing 272; bill from rear edge of nostril 103 mm.

¹ Distance from tip of longest primary to tip of innermost primary.

This specimen, as well as having the feathers of the under parts (except upper throat) salmon with blackish margins, also has some of the shorter crest feathers so marked. The cheeks were recorded as having three blue spots. Chapin (1932, p. 482) has suggested that Upper Guinea birds are smaller than those from Lower Guinea, but the present specimen, apparently adult, has a slightly longer wing and shorter bill than the Upper Guinea birds that he measured.

The only ibis of this genus recorded by Allen (1930, p. 651) for Liberia was *L. olivacea* (under the name of *L. splendida*), which he said was common. However, Bannerman (1930, p. 118) writes that *L. rara* has been recorded from Liberia, and Chapin (1932, p. 482) records a specimen from there in the Philadelphia Academy Collection.

Field notes.—Only two spotted-breasted green ibis were seen, a pair that flushed from a swampy stream in primary forest (H.B.).

Family ANATIDAE

Nettapus auritus Boddaert

Anas aurita Boddaert, 1783, Tabl. Pl. enlum., p. 48—Madagascar.

Firestone Plantation: 13 males, 4 females; March 25–May 15, 1948.

Wing: males (10), 147–161 (av. 155.2); females, 147, 155, 156, 159 mm.

None of these birds show any molt of the flight feathers.

Allen did not have a record of this species for Liberia; Bouet (1931, p. 369) had one sight record of a pair on the River Junk. Our specimens are apparently the first to be taken in the country.

Field notes.—I found the dwarf goose very uncommon at the Firestone Plantation, where it arrives annually about July in small numbers and remains on the flooded marshlands until November. However, with the formation of the "Lake" in 1947 the birds have been reported from April to July. Its occurrence in Liberia seems to depend on the presence of suitable areas of water (H.B.).

Plectropterus gambensis gambensis Linnaeus

Anas gambensis Linnaeus, 1766, Syst. Nat., ed. 12, 1: 195—Gambia.

Firestone Plantation: 1 female immature; March 25, 1948.

Wing 465 mm.

Family FALCONIDAE

Milvus migrans parasitus Daudin

Falco parasitus Daudin, 1800, *Traite d'Orn.*, 2: 150—South Africa, Cape Province, Peddie Division.

Ganta: 2 males, 2 sex?; January 27, February 26, 1948.

Wing: males, 388, 397; sex?, 392, 399 mm.

All these specimens had some black in the bill, and in two of them it was mostly black. Migrations are probably responsible for lack of records at certain localities; for instance, Allen (1930, p. 654) did not record the black kite at Monrovia, where Bouet (1931, p. 369) found it common but only in the dry season.

Grant and Mackworth-Praed (1933, p. 23) distinguished the kite of the central part of Africa as *M. m. tenebrosus* (type locality Beoumi, Ivory Coast). I have insufficient South African material to form an opinion as to the validity of this race.

Field notes.—The black kite arrived in large numbers at Firestone Plantation near the end of the rainy season, in November, and remained until around January. After that date only occasional pairs were seen. At Ganta birds were observed from January to April; deserted nests [of this species?] were occasionally found in tall silk-cotton trees, and during March and April many young birds were on the wing (H.B.).

Kaupifalco monogrammicus monogrammicus Temminck

Falco monogrammicus Temminck, 1824, *Pl. Col.*, livr. 53, pl. 314—Senegal.

Firestone Plantation: 2 females; November 22, 1947, January 3, 1948.

Ganta: 5 males, 1 female; February 15–March 6, 1948.

Wing: males, 209, 214, 218; females, 221, 226, 226 mm.

Though the northern lizard-buzzard is a common African bird, the only other Liberian records seem to be the three specimens secured by Buttikofer.

Though two races of this species had been widely accepted, Grant and Mackworth-Praed in 1934 (pp. 130, 131) were unable to recognize any races, either on size or on color, and Jackson and Selater (1938, 1: 187, 188) identify Kenya and Uganda birds as *meridionalis*, but state that while southern birds average larger, the variation in color and size is so marked that they are inclined to accept Grant and Mackworth-Praed's views.

In the series of thirty-eight skins in Chicago Natural History Museum, including a fine series of seventeen birds from Angola, there is quite evident geographical variation, in both size and color.

The wing measurements of the present series are as follows:

	Male	Female	Sex?
Cameroon.....	211, 217	238	216
Liberia.....	209, 214, 218	221, 226, 226	...
Uganda.....	221, 223	237	225
Kenya.....	215	225, 236, 241	...
Bechuanaland.....	...	249	...
Angola.....	220, 226, 230, 232, 234, 235	234, 236, 239, 241, 243, 244, 246, 249	...

In color, the extremes are represented by Cameroon and Angola birds. The seventeen Angola birds and the one from Bechuanaland, compared with the four Cameroon birds, average much more heavily barred below, especially on the abdomen and tibiae; they also average much darker, more slaty, less pale gray, on the breast band, and much darker, more slate gray, less pale bluish gray on the upper parts. In the under wing the Angola birds tend to have more markings in the coverts, and more freckling on the inner edges of the primaries, but this is a variable character. Though there is individual variation in each series in color of upper parts, breast band, and barring, the difference between the two series is considerable, and there is no overlap in characters.

The Liberia birds agree with the Cameroon birds in color of breast band and back but are somewhat more heavily barred below, approaching the barred condition in three of the least heavily barred Angola birds, except that the thighs are not quite as heavily barred.

The five Uganda birds (from Busoga, Teso, Lwero, and Bunyoro) fall within the range of variation of the Liberia-Cameroon birds. Of the four Kenya birds, two (from Fort Hall and Mombassa) are similar to the Uganda birds, while two (from Embu and Taveta) are rather different, and in color of breast band and heaviness of barring are closer to average Angola birds.

From the above it appears that two races are rather clearly distinct on the basis of color, and with a slight size difference, comparing Cameroon, Liberia and Uganda birds, which are *K. m. monogrammicus* (type locality Senegal) with Angola-Bechuanaland birds, which are *meridionalis* (type locality Ambriz, Angola). Jackson and Sclater's (op. cit.) identification of Uganda birds as *meridionalis* is not confirmed by this material. In Kenya, birds of two types

occur, possibly indicating an area of meeting or intergradation. Chapin (1932, p. 607) has pointed out what appears to be a similar state of affairs in parts of the Belgian Congo.

Field notes.—At Firestone Plantation the lizard-buzzard was an uncommon hawk of the second growth, haunting open farmlands to feed on lizards and small rodents. At Ganta the bird was uncommon (H.B.).

Gypohierax angolensis Gmelin

Falco angolensis Gmelin, 1788, Syst. Nat., 1, pt. 1: 252—Angola.

Ganta: 2 male adults; July 1, 3, 1948.

Wing 403, 410 mm.

Field notes.—The vulturine fish eagle was seen at both Firestone Plantation and Ganta; it covers much territory during its daily forays but returns each evening to its favorite roost. This conspicuous bird was quite frequently seen hunting near the ground in open forest, and one was seen on a trail pecking at a small snake that a native had killed (H.B.).

Accipiter minullus erythropus Hartlaub

Nisus erythropus Hartlaub, 1855, Jour. Orn., 3: 354—Rio Bountry, Gold Coast.

Ganta: 1 female adult; March 6, 1948.

Wing 169; tail 122; tarsus 44; culmen from cere 13 mm.

Allen (1930, p. 657) recorded this species under the name *Accipiter hartlaubi*.

Field notes.—Only one little sparrow-hawk was seen; it was in high forest (H.B.).

Accipiter tachiro macroscelides Hartlaub

Astur macroscelides Hartlaub, 1855, Jour. Orn., 3: 354—Gold Coast.

Ganta: 1 sex? immature; January 31, 1948.

Wing 209; tail 192 mm.

The breast is strongly washed with buffy, and the large dark spots are mostly on the sides of the breast.

Field notes.—A rare hawk of the heavy forest (H.B.).

Gymnogenys typicus pectoralis Sharpe

Polyboroides pectoralis Sharpe, 1903, Bull. Brit. Orn. Cl., 13: 50—Efulen, Cameroon.

Firestone Plantation: 1 male adult, 1 female adult; June 18, 30, 1948.

Wing: male, 391; female, 397 mm.

Field notes.—At Firestone Plantation, the harrier-hawk was uncommon and wary, foraging among the tufts of parasitic plants that cover the trees, with occasional forays into farmlands and oil palm groves. At Ganta the bird was uncommon (H.B.).

Family PHASIANIDAE

***Francolinus bicalcaratus thornei* Ogilvie-Grant**

Francolinus thornei Ogilvie-Grant, 1902, Bull. Brit. Orn. Cl., 13: 22—Sierra Leone.

Firestone Plantation: 5 males, 1 female; April 20–November 18.

Ganta: 1 female immature; March 20, 1948.

Wing: males, 175, 176, 178, 178, 178; females, 162, 165 mm.

Compared with a series of the nominate race from Senegal this race is very distinct in the darkness of its plumage. The Ganta bird, though only two-thirds grown, is as dark as the others. Individual variation is considerable, especially in the pale edgings of the feathers of the foreback. This reaches its extreme in two females, one of which has only a few narrow whitish edgings to the feathering of the upper part of the foreback, while the other has wide conspicuous edgings on the whole foreback. Spurs have been recorded in the female of this subspecies, but none show in any of the present series.

All the April, May, and June specimens show wing molt but the November bird does not. One immature, nearly full grown, was taken June 6, and the Ganta bird, taken on March 20, is about two-thirds grown.

Field notes.—At Firestone Plantation and Ganta the double-spurred francolin was common. Flocks numbering from six to twenty birds came to the farmlands to feed during the early morning and late afternoon, and sheltered in the surrounding thick second growth. This francolin readily takes wing when first disturbed but thereafter lies very close and hidden until it is almost stepped on, when it flushes with a terrific whir. The birds commence to call in April and begin to pair then; after November, calls are rarely heard; young birds were seen as early as December (H.B.).

Francolinus achantensis Temminck

Francolinus achantensis Temminck, 1854, Bijdr. Dierk., 1: 49—Ahanta, Gold Coast.

Firestone Plantation: 3 males; April 24–June 15, 1948.

Wing: males, 172, 179, 181 mm.

All three specimens show wing molt.

Numida meleagris galeata Pallas

Numida galeata Pallas, 1767, Spic. Zool., 1, fasc. IV: 13, 15—no locality.

Ganta: 2 males, 2 females; March 4–20, 1948.

Wing: males, 270, 270; females, 248, 251 mm.

All four birds show molt of the remiges.

A widespread subspecies in West Africa, but this appears to be the first record for Liberia.

Guttera edouardi pallas Stone

Guttera pallas Stone, 1912, Auk, 29: 208—West Africa.

Ganta: 2 females; January 3, February 26, 1948.

Wing 246, 252 mm.

One specimen was molting its remiges; one was not.

Family **RALLIDAE**

Crexopsis egregia Peters

Orlygometra (Crex) egregia Peters, 1854, Monatsber. Akad. Wiss. Berlin, 1854: 134—Tete, Zambesi.

Firestone Plantation: 2 males; May 20, 24, 1948.

Ganta: 1 male; February 16, 1948.

Wing 116, 117, 123 mm.

None show molt of the remiges.

Allen (1930) had no record of this widespread species for Liberia, and Bouet (1931, p. 373) doubtfully recorded it on the basis of sight records and two nests with eggs. The present specimens appear to be the first for the country.

Limnecorax flavirostra Swainson

Gallinula flavirostra Swainson, 1837, Birds West Afr., 2: 244—Senegal.

Firestone Plantation: 6 males, 6 females; January 9–May 19, 1948.

Wing: males, 101, 102, 105, 105, 106, 108; females, 99, 100, 102, 103, 104, 104 mm.

None of these specimens show wing molt.

Two specimens, females taken in May, have a few immature grayish feathers in the throat; otherwise the series is in the black adult plumage.

Field notes.—At Firestone and Ganta the black crake was common in marshlands of low thick vegetation and saw grass swamps. The birds commence to mate about April and their peculiar guttural calls come from everywhere during the day. Young birds were seen in November (H.B.).

***Sarothrura pulchra pulchra* Gray**

Crex pulchra Gray, 1829, in Griffith's Anim. Kingd., Aves, 3: 410—Sierra Leone.

Firestone Plantation: 2 male adults; September 26, October 13, 1947.

Wing 80, 81 mm.

***Sarothrura elegans reichenovi* Sharpe**

Corethrura reichenovi Sharpe, 1894, Cat. Birds Brit. Mus., 23: 121—Buea, Mount Cameroon, West Africa.

Firestone Plantation: 1 male adult; September 4, 1947.

A new record for Liberia, and a notable western extension of range for the species.

Though the presence of the buff-spotted pygmy rail has been suspected in Upper Guinea, since Bates reported hearing the calls of this species in Sierra Leone and southern French Guinea, to date the most westerly record based on a specimen has been the one from southern Nigeria (Chapin, 1939, p. 22).

As Chicago Museum had no adequate material, Dr. J. P. Chapin kindly compared the specimen with the collections in the American Museum. He writes (in part) that the specimen "seems to be close to the minimum size for the species, and it looks rather dark on the upperside. The rufous on the crown and nape is about as dark as I have ever seen it, and the feathers are narrowly tipped with black. The buff spots on the back, too, look a trifle smaller, with a little more extensive black between them than in almost any male specimen from the Congo. What is left of the tail, just a little of its left side, seems a little more heavily barred and a little less washed with rufous than the average, even for the Congo."

Field notes.—At Firestone Plantation and Ganta I found this crake haunting the dense thickets of high ground as frequently as the lush vegetation of marshlands. It is a shy bird, and I did not see it by day, nor did I hear the whistling calls. Perhaps it has a different note during daytime. At night, during nearly every month, the whistling calls came drifting on the night winds. One evening I heard a bird calling in scrub growth that was not too dense. By working my way cautiously, aided by a flashlight, I soon found myself peering into a thicket where the crake was hidden. First, I observed a faint trembling of leaves six feet from me and discovered the bird on a branch three feet above the ground, nestled amongst a cluster of leaves with its head shaded from view. In a moment I was assured that the mysterious sound emanated from the crake and not from a ground lizard or a tree snail, as related in favorite tales by the natives. After a moment of relaxation the bird's body began to swell; then followed a sudden and perceptible shudder and the whistled note began. It commences very low and softly, works up to a high pitch with vigor, and then, suddenly diminishing, it stops. This particular crake was secured. Efforts were made to secure additional specimens but the birds always stopped calling when I got near. The calls have been heard throughout the night; occasionally the pattern was continuous for many hours at eight seconds duration, followed by a slight pause for breath, so to speak, and six seconds for inflating the air sacs.

Crakes were very common in the Harbel and Ganta areas, and, although only two species were collected, it is conceivable that others occur (H.B.).

***Porphyryla alleni* Thompson**

Porphyrio alleni Thompson, 1842, Ann. Mag. Nat. Hist., 10: 204—Idda, Niger River.

Firestone Plantation: 1 male adult, 1 male immature, 2 female adults, 2 female subadults; April 24–May 15, 1948.

Wing: male adult, 157; female adults, 150, 153 mm.

None of these specimens show any molt of the remiges.

Both subadults are largely in adult plumage but retain their immature wings and have a few buffy tipped feathers in the under parts; the immature is in full immature plumage.

Though a common and widespread species in Africa, this appears to be the first record for Liberia.

Family CHARADRIIDAE

Stephanibyx lugubris Lesson

Charadrius lugubris Lesson, 1826, Diet. Sci. Nat., ed. Levrault, 43: 36—Senegal.

Firestone Plantation: 1 female; May 17, 1948.

Wing 171 mm.

This specimen is in worn plumage, and shows no molt of the remiges.

Family RECURVIROSTRIDAE

Himantopus himantopus himantopus Linnaeus

Charadrius himantopus Linnaeus, 1758, Syst. Nat., 10th ed., p. 151—southern Europe.

Firestone Plantation: 1 female(?) immature; March 25, 1948.

Though this bird is a widely distributed species in Africa, the present record appears to be the first for Liberia.

Family GLAREOLIDAE

Glareola pratincola boweni Bannerman

Glareola pratincola boweni Bannerman, 1930, Bull. Brit. Orn. Cl., 51: 28—Nokunda, Gambia.

Firestone Plantation: 4 males, 2 females, 1 sex?; April 2–27, 1948.

Wing: males, 186, 189, 193, 201; females, 190, 190 mm.

These specimens are all in rather worn plumage; none shows molt of the remiges. This is the first record of the species for Liberia.

Field notes.—A dozen birds were seen along the runway at Robertsfield in the Firestone Plantation during May and June (H.B.).

Glareola nuchalis liberiae Schlegel

Glareola nuchalis liberiae Schlegel, 1881, Notes Leyden Mus., 3: 58—Liberia.

Firestone Plantation: 7 male adults, 7 female immatures, 1 sex?; September 2–27, 1947.

Wing: male adults, 139–147; female adults, 140–146 mm.

This series of September birds includes fresh-plumaged birds, some of which are just completing their wing molt, as well as birds in worn plumage of which some show wing molt whereas others have not yet started it.

Field notes.—At Firestone Plantation a dozen pairs of the chestnut-collared pratincole bred on the rocky islets in the Farmington River during March. A flock of over 300 of these birds arrived in October, 1947, and remained at the falls for several months. They passed the day huddled together on the rocks, but in early morning and late afternoon they swarmed into the sky, skimming the river and soaring a thousand feet up in the air. Stomachs examined were crammed with large black-winged ants and miscellaneous beetles (H.B.).

Family JACANIDAE

Actophilornis africana Gmelin

Parra africana Gmelin, 1789, Syst. Nat., 1, pt. 2: 709—Abyssinia.

Firestone Plantation: 2 male adults, 2 female adults, 2 male immatures, 3 female immatures; December 25, 1947, March 25–May 15, 1948.

Wing: male adults, 149, 155; female adults, 167, 173 mm.

The December adult shows molt of the remiges; the three March, April, and May adults do not.

Strangely enough, Allen (1930, p. 668) did not meet this species, and could find only one published record, a specimen taken by Johnson. Bouet (1931, p. 375) called the species relatively rare, meeting with it only once.

It has been generally considered that the downy young of the family Jacanidae were patterned (Lowe, 1925, p. 133). Friedmann (1930, p. 152), when discussing the plumages of *Actophilornis africanus*, was unable to see or to find descriptions of the downy stage, and since the juvenile plumages of *Actophilornis* and *Jacana* were similar he suggested that the downy plumages were also similar. He wrote of the downy *A. africanus*, "... probably white on the underparts; dark sepia on the top of the head and back of neck; rufous brown on rest of upperparts." However, Chapin (1939, p. 59) writes: "According to Emin, a chick taken from the egg was wholly velvet-black, its bill flesh-red with a whitish tip, and the large feet reddish gray with dark claws. His mention of the size of the feet would seem to obviate any error."

In the Conover collection in Chicago Natural History Museum are two specimens of downy young from Luluabourg, Kasai District, Belgian Congo, collected by Father Callewaert, February 2, 1934. These young, from the structure of the bill, the small shield on the

forehead, and the feet and claws, are evidently jacanas, and from their general condition of plumage and their small size (bill, 12; tarsus, 18 mm.) are evidently not many days old at most.

The downy plumage is as follows: crown light reddish-brown deepening posteriorly, and with a median black stripe which does not quite reach the forehead but is confluent with the black hind neck; back with a rich rufous brown central dorsal stripe, darkening posteriorly and bordered on each side with lines of black that meet over the rump, then lines of buffy white, and then lines of black that are separated from the black of the outer sides of the thighs by areas of reddish brown; wings above light reddish brown bordered anteriorly with black, and with the distal portion white; lores and cheeks white, with a black line bordering the brown crown from eye to nape where it joins the black crown stripe and the black hind neck; rest of under parts white, except for a brownish tinge to the region of the vent.

Compared with a somewhat older downy specimen of *Jacana spinosa* from El Salvador the differences are minor, most noticeable being the brighter and paler tone of the brown areas, and the brown of the dorsal stripe extending to the tail in *J. spinosa*. Comparing Sharpe's description (1896, p. 87) of the downy young of *J. spinosa* with the present specimen from El Salvador, I find close agreement, except that Sharpe does not mention the median black streak from center of crown to nape, and I cannot see the "zigzag line of black on the flanks."

It is evident that, contrary to Chapin, the downy young of the African jacana are patterned, and in this plumage are very similar to the American jacana.

Field notes.—During the heavy rains in October, 1947, a large number of jacanas appeared in the flooded flats of Firestone Plantation and remained for only a few days. From February to July, however, a dozen of them were seen on the "Lake," walking about over the lily pads (H.B.).

Family COLUMBIDAE

Columba iriditorques Cassin

Columba iriditorques Cassin, 1856, Proc. Acad. Nat. Sci. Phila., 8: 254—
St. Paul's River, Liberia.

Ganta: 1 male, 1 female; February 7, 1948.

Wing: male, 161; female, 155 mm.

Neither bird shows wing molt.

A trinomial is often used for this bird, on the assumption that *C. incerta* Salvadori, of unknown origin, will prove to be a race of this species.

***Streptopelia semitorquata erythrophrys* Swainson**

Turtur erythrophrys Swainson, 1837, Bds. W. Afr., 2: 207, pl. 22—no locality (=Senegal).

Firestone Plantation: 1 male; June 17, 1948.

Wing 175 mm.

This race is based on an average slightly smaller size and perhaps should be united with *semitorquata* (see Chapin, 1939, p. 163).

***Tympanistria tympanistria fraseri* Bonaparte**

Tympanistria fraseri Bonaparte, 1855, Consp. Av., 2: 67—Fernando Po.

Firestone Plantation: 1 male immature; June 22, 1948.

Ganta: 1 male adult; February 4, 1948.

Wing: male adult, 110 mm.

The February adult shows no wing molt.

***Turtur afer liberiensis* Rand**

Turtur afer liberiensis Rand, 1949, Fieldiana, 31: 310—Harbel, 35 miles from Monrovia, Liberia.

Firestone Plantation: 6 males, 3 females, 1 sex?; May 28–July 17, 1948.

Wing: males, 102, 104, 105, 106, 108, 112; females, 101, 102, 106 mm.

Four of these birds showed wing molt; six did not.

Field notes.—At Firestone Plantation and Ganta the blue-spotted wood-dove was common and equally distributed throughout farmlands and thick second growth, where it fed on the ground. Nests, with egg, placed on mats of vines were found during April and May (H.B.).

***Treron calva sharpei* Reichenow**

Vinago calva sharpei Reichenow, 1902, Orn. Monatsber., 10: 45—Upper Guinea.

Firestone Plantation: 5 males, 1 female, 1 sex?; January 24–July 10, 1948.

Wing: males, 151, 156, 156, 157, 161; female, 151 mm.

One May and two June birds show wing molt; the one January, two June, and one July bird do not.

Field notes.—At Firestone Plantation fruit pigeons were not common, but they usually gathered in large flocks at favorite feeding stations; during June and July, however, small scattered flocks were seen feeding in second growth trees.

In flight the whistling of the wing beats carried plainly and is characteristic.

During October the characteristic notes of this species are heard, coming from tall forest trees. There the males exhibit a spirit of aggressiveness, slamming each other with extended wings. Apparently from January to July these pigeons are silent (H.B.).

Family CUCULIDAE

Clamator cafer Lichtenstein

Cuculus cafer Lichtenstein, 1793, Cat. Rerum rar., Hamburg, p. 14—Kaffirland (=Eastern Cape Province).

Firestone Plantation: 1 male immature, 1 female immature; November 23, January 8.

Ganta: 1 female adult; February 3, 1948.

Wing: female adult, 172; tail, female adult, 225 mm.

The two immatures are molting from the immature to the adult plumage. All these specimens are in normal plumage, with a moderate amount of streaking on the throat.

Field notes.—At Firestone Plantation, a few Levaillant's cuckoos were seen from October to January in second growth. At Ganta they were also found in thick second growth, although they were uncommon; songs were heard frequently during March and April (H.B.).

Chrysococcyx cupreus cupreus Shaw

Cuculus cupreus Shaw, 1792, Mus. Lever., p. 157—Africa, Gambia.

Firestone Plantation: 1 male adult; October 2, 1948.

Ganta: 3 male adults, 1 female adult; March 10–April 7, 1948.

Wing: males, 106, 108, 109, 114 mm. Tail: males, 98, 101, 105, 118 mm.

Bannerman (1933, pp. 112, 113) writes that in West Africa plume hunters have caused a decrease locally in the numbers of the

emerald cuckoo, and that there are only two other records for Liberia.

Field notes.—At Firestone Plantation the emerald cuckoo was uncommon; from April to July its very lovely song, of three whistled notes, was frequently heard coming from tall forest trees. At Ganta it was uncommon also, although two were secured from tall forest undergrowth and many songs were heard from the treetops in March and April. It is a shy bird (H.B.).

Chrysococcyx caprius Boddaert

Cuculus caprius Boddaert, 1783, Tabl. Plan. enlum., p. 40—Cape of Good Hope.

Ganta: 1 male adult, 1 female immature; March 6, April 2, 1948.

Wing: male, 112; female, 114 mm. Culmen: male, 18; female, 22 mm.

The immature bird has a few iridescent feathers growing in on the rufous crown. Note the very large bill of this bird.

Field notes.—At Ganta the didric cuckoo was rare; the few seen were perched on the topmost dry branches of tall trees (H.B.).

Chrysococcyx klaas klaas Stephens

Cuculus klaas Stephens, 1815, in Shaw's Gen. Zool., 9: 128—Cape Colony.

Firestone Plantation: 1 male adult; September 28, 1947.

Ganta: 1 female adult; January 24, 1948.

Wing: male, 97; female, 93 mm. Tail: male, 71; female, 69 mm.

Field notes.—Klaas' cuckoo was a rare species; one pair was seen in second growth trees bordering a swamp (H.B.).

Centropus leucogaster leucogaster Leach

Polophilus leucogaster Leach, 1814, Zool. Misc., 1: 117, pl. 52—New Holland (in error=Gold Coast Colony).

Firestone Plantation: 1 sex?; January 4, 1948.

Wing 187 mm.

The black-throated coucal is evidently a rare bird in Liberia, as Buttikofer's various records seem the only other ones for the country.

Field notes.—At Firestone Plantation a pair of black-throated coucals was flushed from heavy undergrowth in high forest. At Ganta this bird was uncommon. It frequents heavy second growth, preferably swamp thickets.

The call of this species resembles that of the Senegal coucal, but is deeper in tone (H.B.).

Centropus senegalensis senegalensis Linnaeus

Cuculus senegalensis Linnaeus, 1766, Syst. Nat., ed. 12, 1, pt. 1: 169—Senegal.

Firestone Plantation: 2 male adults, 1 male immature, 4 female adults, 1 female immature; April 20–July 16, 1948.

Ganta: 1 male adult; March 10, 1948.

Wing: male adults, 149, 157, 161; female adults, 157, 158, 161, 167 mm. Tail: male adults, 169, 184, 181; female adults, 175, 178, 185, 186 mm.

We have but a single topotype for comparison, but two French Sudan (Bamako) specimens agree fairly well with the Senegal bird. They measure: wing, male, 157, 180; female, 169; tail, male, 200, 211; female, 196. The present Liberian birds differ from the above three specimens in the darker chestnut upper parts; the darker, more blackish upper tail coverts; and the shorter tail. Though the race *senegalensis* is usually stated to range from Senegal to the mouth of the Congo in West Africa, our material suggests that the more humid areas may be inhabited by a darker race.

Field notes.—The Senegal coucal was common. It haunts the thick second growth of farmlands and swamps. The peculiar, liquid bubbling notes are usually given first by the male and followed instantly by the similar voice of the female on a slightly higher scale. This performance is repeated many times (H.B.).

Ceuthochares aereus flavirostris Swainson

Zanclostomus flavirostris Swainson, 1837, Bds. W. Afr., 2: 183—West Africa (Senegal).

Firestone Plantation: 1 male; November 23, 1947.

Ganta: 3 males; January 31–April 11, 1948.

Wing: 116, 117, 118; tail, 188, 188, 191, 196 mm.

Field notes.—The yellow-bill or green coucal was an uncommon species. It was a bird of thick second growth. Songs or calls were heard during March and April (H.B.).

Family **MUSOPHAGIDAE**

Tauraco persa buffoni Vieillot

Opoethus buffoni Vieillot, 1819, Nouv. Dict. Hist. Nat., 34: 304—Sierra Leone.

Ganta: 6 males, 4 females, 1 sex?; January 29–April 10, 1948.

Wing: males, 165, 167, 173, 175, 183, 187; females, 167, 169, 172, 178 mm.

In the present series the black and white of the face pattern is in close agreement with the pattern of *buffoni* as figured by Bannerman (1933, p. 55).

The species was included in Allen's Liberian list (1930, p. 677) on the basis of Hartlaub's old record, which Allen considered to be probably mistaken, though believing that the species was to be looked for in northwestern Liberia. The present specimens are a south-eastward extension of range of this subspecies, and the first definite record for Liberia.

Field notes.—At Ganta the Senegal touraco was common. It fed wherever drupes and berries abounded, in high forest or in second growth, and was active chiefly in early morning and late afternoon. From January to April its calls were heard at long intervals during the day. It seems that an impulsive bird strikes the first clarion note and instantly all the neighboring birds take it up. The chorus travels like a wave through the forest. Long after the first birds have stopped, birds in the far distance are taking up the call. One wonders if perhaps the notes are not relayed a very great distance (H.B.).

Tauraco macrorhynchus macrorhynchus Fraser

Corythaix macrorhynchus Fraser, 1839, Proc. Zool. Soc. London, 1839: 34—
Sierre Leone.

Firestone Plantation: 6 males, 3 females; May 24–June 6, 1948.

Wing: males, 162, 163, 165, 169, 170, 171; females, 164, 169, 172 mm.

All specimens are in fresh, unworn plumage.

Field notes.—At Firestone Plantation the "red wing" was common in heavy second growth. It was heard calling from November to March, and was much less shy than the Senegal touraco. The differences between the calls of the two species are slight or non-existent (H.B.).

Corythaeola cristata Vieillot

Musophaga cristata Vieillot, 1816, Analyse, p. 68—Africa.

Ganta: 1 male, 1 female; January 29, February 6, 1948.

Wing: male, 331; female, 305 mm.

Both birds are in somewhat worn plumage.

The geographical variation in this species has been variously treated, and the acceptance of the eastern race *C. c. yalensis* of Mearns is far from universal. Bannerman (1933, p. 72) dismisses it as described on a single specimen (Mearns had three birds). However, Peters (1940, p. 9) accepts the race with a range in western Kenya and Uganda. Van Someren (1922, p. 48) found that eastern birds were larger than western birds; in color topotypical *yalensis*, of which he had six, were similar to Sierra Leone birds, but compared with other West African birds were less blue, more greenish above and paler on the cheeks and throat. Chapin (1939, p. 236) recognized that there was variation in color and size, birds from the central part of the forest belt being perhaps more deeply colored than those from the periphery of the range; however, he felt that the changes seemed too gradual for the exact delimitation of ranges.

We have for comparison the following wing measurements:

	Male	Female	Sex?
Kenya (Yala River, topotypes).....	345, 349	...	...
Uganda.....	314, 335	303	...
Anglo-Egyptian Sudan (Torit).....	299	...	...
Liberia.....	330	305	...
Nigeria (Ifon).....	...	315	...
(Mount Cameroon).....	...	319	...
Cameroon.....	315, 320, 324	...	332, 337

In size the most eastern population has the largest individuals, but the size difference is not great. In any case, Uganda and Kenya birds do not agree on this. In color, the blue of the upper parts becomes paler with wear, and I can see no constant difference from area to area. However, in color of the lower parts of the cheeks the Kenya, Uganda, Sudan, Liberia, and Nigeria birds agree in having the cheeks from the base of the bill to below the eye mostly grayish; in five Cameroon birds this is mostly blue or blue black. This indicates that if races were to be separated, the Upper Guinea to Sudan and Kenya birds must be kept together on color (with Kenya birds kept separate on size?).

Field notes.—The "peacock" was common at both the Firestone Plantation and Ganta. It was a bird of the high forest but frequented the adjoining second growth to feed on favorite drupes and berries. Its calls were heard from November to March (H.B.).

Family PSITTACIDAE

Psittacus erithacus timneh Fraser

Psittacus timneh Fraser, 1844, Proc. Zool. Soc. London, 1844: 38—Timneh country, Sierra Leone.

Ganta: 1 male, 1 sex?; March 20, July 6, 1948.

Wing: male, 216 mm.

These specimens show the dark gray plumage, the very dark tail, the small size, and the mandible with its upper part horn-colored, all characteristic of *timneh*. As occasionally happens in this species the other specimen (unsexed) has orange red feathers scattered over the upper parts and scattered tinges of red on the under parts.

Field notes.—At Firestone Plantation the gray parrot was uncommon and seldom seen. At Ganta small flocks moved back and forth but seemingly were coming from distant places. Young birds were seen in April (H.B.).

Family CORACIIDAE

Eurystomus glaucurus afer Latham

Coracias afra Latham, 1790, Index Orn., 1: 172—Africa (=Senegal).

Firestone Plantation: 2 males, 2 females; December 1, 10, 1947, May 24, 1948.

Ganta: 1 male; January 25, 1948.

Field notes.—At Firestone Plantation the broad-billed roller was first noticed in October, when single birds were scattered about the low second growth of the savanna. A few weeks later, flocks, numbering hundreds of birds, were seen hawking for swarming insects during late afternoons.

At Ganta these birds were rare; a small number were seen, in the heavy second growth, from January to April (H.B.).

Eurystomus gularis gularis Vieillot

Eurystomus gularis Vieillot, 1819, Nouv. Dict. Hist. Nat., 29: 426—Australasie (=Senegal).

Firestone Plantation: 1 male, 1 female, 1 immature; September 20, 1947, June 18, 1948.

Ganta: 2 males, 2 females; February 21, 26, 1948.

Wing: males, 151, 157, 157; females, 156, 157, 159 mm.

The immature was taken June 18. It still has the dark brown parts of the plumage with a scaly appearance, no blue in the brown throat, and the lower breast and belly light blue. This species has been considered rare in Liberia, recorded only from the St. Paul and Farmington rivers.

Field notes.—Only an occasional pair of blue-throated rollers was seen before January, 1948, at Firestone Plantation. However, during my later observations, from April to July, about ten pairs were found nesting in a high-forested island.

While I was at Ganta, from January to April, the species was not uncommon. The birds hawked for insects from the tops of high forest trees and their strange calls were often the only clue to their presence (H.B.).

Family ALCEDINIDAE

Ceryle maxima maxima Pallas

Alcedo maxima Pallas, 1769, Spic. Zool., fasc. 6: 14—Cape of Good Hope.

Firestone Plantation: 1 male; November 15, 1945.

Wing 196 mm.

Allen (1930, p. 680) records only *C. m. maxima* from Liberia, and Bannerman (1933, p. 248) says Loko, Nigeria, is the most western locality of *sharpei* (= *gigantea*). However, he also says he has seen one Liberian example similar to *sharpei*, though other Liberian examples are typical *C. m. maxima*, heavily spotted with white. Chapin (1939, pp. 294–296) has seen one Liberian example of *gigantea* and gives the range of *gigantea* as both Upper and Lower Guinea forests. He says that specimens of *maxima* are sometimes found in the range of *gigantea* and the reverse. A habitat difference between the two has also been suggested, *gigantea* being a bird of the continuous forest.

It appears that two types of plumage may occur in some areas, with varying degrees of frequency. The validity of identifying part of one population as one subspecies, part as another, on morphological grounds, is questionable. Rather, the average characters of each population should be used. As Bannerman indicates, the *maxima* type of plumage predominates in Liberia. I am referring the present specimen to that form, despite the fact that the specimen has the almost unspotted back and the very heavily dark-barred under parts, with no white area on the breast, of the *gigantea* type of plumage.

Field notes.—The giant kingfisher was a rare species (H.B.).

***Alcedo quadribrachys quadribrachys* Bonaparte**

Alcedo quadribrachys Bonaparte, 1850, Consp. Gen. Avium, 1: 158—Guinea.

Firestone Plantation: 1 female immature; March 27, 1947.

Field notes.—At Firestone Plantation several shining blue kingfishers were seen on the Du River. A specimen was secured by hand as I waded a small forest stream by night with a flashlight (H.B.).

***Alcedo cristata cristata* Pallas**

Alcedo cristata Pallas, 1764, in Vroeg's Cat., Adumbr., p. 1—Cape of Good Hope.

Firestone Plantation: 1 male, 2 females; April 16–June 23, 1948.

Wing: male, 51; females, 52, 52 mm. Culmen: females, 32, 33 mm.

Field notes.—At Firestone Plantation the malachite kingfisher was uncommon. Most of those seen were along streams in secondary forests (H.B.).

***Ispidina picta picta* Boddaert**

Todus pictus Boddaert, 1783, Tabl. Pl. enlum., p. 49—Juida (=St. Louis, Senegal).

Ganta: 4 females; February 23–March 31, 1948.

Wing 51, 52, 52, 52 mm. Culmen 25, 28, 29 mm.

Field notes.—At Ganta the pygmy kingfisher was common, particularly about ponds, swamps, streams, and along the large rivers. In clearings it was often seen swiftly diving into the grass for insects (H.B.).

***Halcyon senegalensis fuscopileus* Reichenow**

Halcyon senegalensis fuscopileus Reichenow, 1906, Orn. Monatsber., 14: 171—Jaundi and Bipindi, Cameroon.

Firestone Plantation: 3 males, 1 sex?; November 20, 30, 1947, May 4, 1948.

Ganta: 2 males, 1 female; February 3–March 27, 1948.

Wing: males, 96, 101, 103, 108; female, 104 mm.

There is some variation in the amount of dusky on the crown in this series. In some specimens it is as dusky as any Cameroon bird, while in others it is nearly as pale as the darkest Uganda example of *H. s. senegalensis*.

Field notes.—At Firestone Plantation this bird was common; at Ganta it was uncommon (H.B.).

Halcyon malimbica forbesi Sharpe

Halcyon forbesi Sharpe, 1892, Cat. Bds. Brit. Mus., 17: 247, pl. 6, fig. 2—Shonga, Niger River.

Ganta: 1 male, 3 females, 1 sex?; January 25–April 3, 1948.

Wing: male, 114; females, 114, 116, 116 mm.

Though these birds differ from a Cameroon bird from the River Ja (*H. m. malimbica*) as described, the difference is not as pronounced as shown in Bannerman's plate (1933, pl. 9).

Field notes.—At Ganta, the blue-breasted kingfisher was uncommon. The only birds seen were in the heavy undergrowth in high forest, and occasionally near forest streams. The characteristic call notes were frequently heard (H.B.).

Halcyon leucocephala leucocephala Müller

Alcedo leucocephala P. L. S. Müller, 1776, Natursyst., suppl., p. 94—Senegal.

Firestone Plantation: 1 male; December 20, 1947.

Ganta: 1 female; February 29, 1948.

Wing: male, 102; female, 103 mm.

These specimens of the gray-headed kingfisher compare well with a specimen from Cameroon, and two from Abyssinia, but have a somewhat darker crown.

Field notes.—Two other examples of the gray-headed kingfisher were seen at the Firestone Plantation, perched on dead trees in the savanna, in November and December (H.B.).

Family MEROPIDAE**Merops superciliosus chrysocercus** Cabanis and Heine

Merops chrysocercus Cabanis and Heine, 1860, Mus. Hein., Th. 2, p. 139—Senegal.

Firestone Plantation: 2 males, 3 females; June 17, 1948.

Wing: males, 147, 159; females, 147, 149, 150 mm. Tail: males, 186, 195; females, 153, 157, 159 mm. Projection of central rectrices beyond rest of tail: males, 97, 105; females, 65, 70, 70 mm.

The length of the central rectrices is diagnostic for this race. Allen (1930, p. 683) recorded *M. persicus persicus* (= *M. superciliosus persicus*) from Liberia on the basis of old records and did not list the present race. Bannerman (1933, p. 286) is doubtful of the occurrence of *M. s. persicus* in West Africa. Until the occurrence

of *persicus* is substantiated, it is advisable to consider *chrysocercus* as the only form occurring in Liberia.

Though this subspecies is supposed to be only a winter visitor to Upper Guinea, nesting in southern Tunisia, Algeria, and probably in Morocco, it has been recorded in Sierra Leone until the middle of July, and at Lake Chad in mid-June. Perhaps it breeds south of the Sahara (Bannerman, 1933, pp. 287, 288). The present mid-June specimens have freshly molted wings and tails (one bird is just completing its wing molt, and two are just completing their tail molt), and four show considerable molt on the head and body.

Field notes.—At Firestone Plantation from May to July large flocks of blue-cheeked bee-eaters were moving eastward, crossing the savanna and lingering to feed as they travelled (H.B.).

***Aerops albicollis* Vieillot**

Merops albicollis Vieillot, 1817, Nouv. Dict. Hist. Nat., 14: 15—Senegal.

Firestone Plantation: 2 males, 4 females; April 24–May 15, 1948.

Ganta: 3 males; January 27–April 4, 1948.

Wing: males, 97, 97, 98, 100; females, 93, 96, 97 mm. Culmen: males, 33, 34, 36, 36, 37; females, 31, 31, 32, 33 mm.

The measurements of these birds, compared with the measurements of birds from eastern Africa given by Friedmann (1930, p. 359) supports the view that, while the western birds average smaller, the recognition of the eastern race *major* is impractical.

The January specimen has very worn body and flight feathers; the March 12 specimen is molting its wings, as are specimens taken April 4 and 26, and May 4. One specimen taken on April 24 and two taken on May 15 have completed their wing molt but still show some molt on the head, while one specimen taken on May 3 appears to be in full fresh plumage, except for some tail molt. Friedmann (1930, p. 361) wrote that this species was irregular in molt with respect to migration, but the present series indicates that the molt in Liberia is completed in the winter quarters just before the birds migrate north to breed.

Field notes.—At Firestone Plantation and Ganta, this "Dry-time bird," the white-throated bee-eater, arrives in late October in large flocks and leaves in May. During the late afternoons the birds alight in open trails and roadways and from these vantage points they continually flit into the air to capture flying insects. The bird flies up from the ground with a few energetic wing beats, darts

upwards for almost six feet, and seizes an insect; then it tilts over and heads downward, spreading its wings to check its fall as it glides to its perch again. Whenever swarming insects are encountered the bee-eaters sound the call and birds come from hundreds of yards around to share the feast. The sky becomes alive with twisting, darting, noisy birds (H.B.).

Melittophagus pusillus pusillus Müller

Merops pusillus Müller, 1776, *Natursyst.*, suppl., p. 95—Senegal.

Firestone Plantation: 3 males, 3 females, 1 sex?; November 24, 25, 1947—May 6, 1948.

The six specimens taken in November are in fairly fresh plumage; the two specimens taken in April and May are very worn; none shows wing molt. The species is recorded as breeding in Liberia, but migration is also suggested (Allen, 1930, p. 681).

Field notes.—At Firestone Plantation, a colony of ten pairs of little bee-eaters was found, actively capturing flying insects from the scattered brush of the open savanna. At odd moments the paired birds would burst into song with a flourish of outstretched wings as they perched close to each other (H.B.).

Melittophagus gularis gularis Shaw

Merops gularis Shaw, 1798, *Nat. Misc.*, 9: text to pl. 337—Sierre Leone.

Firestone Plantation: 2 male adults, 1 female adult, 1 female immature; June 16–18, 1948.

These birds have the pronounced blue forehead and superciliary stripe characteristic of this race.

All three adult birds are in wing molt; the immature is also molting its wings, and is beginning the body molt into adult plumage.

It has been suggested that this species migrates and is practically absent during the rains, from May to August (Allen, 1930, p. 684).

Family BUCEROTIDAE

Bycanistes cylindricus cylindricus Temminck

Buceros cylindricus Temminck, 1831, *Pl. col.*, livr. 88, pl. 521, fig. 2.

Ganta: 1 male, 1 female; February 16, June 30, 1948.

Wing: male, 311; female, 276 mm.

The male, taken in February, is renewing its wings and tail; the female, taken in June, is in worn plumage and shows no molt.

This is a rare species in Upper Guinea, and there are records of only three other specimens from Liberia (Bannerman, 1933, p. 326).

Field notes.—At Ganta the black-thighed hornbill was uncommon and was restricted to the high forest. Here several birds were seen daily during the late afternoons, feeding on berries (H.B.).

***Tockus fasciatus semifasciatus* Hartlaub**

Buceros semifasciatus Hartlaub, 1855, Jour. Orn., 3: 356—Rio Boutry, Gold Coast.

Firestone Plantation: 1 male, 2 females, 2 sex?; May 17, June 21, 1948.

Ganta: 2 males; February 25, June 30, 1948.

Wing: males, 246, 247, 257; females, 232, 232 mm.

Both Ganta birds, one taken in February and one in June, are molting their wings.

Field notes.—The "allied hornbill" was common at both the Firestone Plantation and Ganta. Flocks travel widely in search of food. One flock of seventy birds presented a strange sight as they moved along in leisurely, undulating flight, the members entirely lacking unison of movement. Each bird gives three or four snappy wingbeats, driving it upward; then there is a downward glide of some fifty feet.

The male, sitting on an exposed perch atop a tall tree, includes in his courtship antics a performance in which he bows up and down rapidly while voicing a piping whistle.

Nest holes were occupied from February to April. The male usually approached the nest silently at feeding time (H.B.).

***Berenicornis albo-cristatus albo-cristatus* Cassin**

Buceros albo-cristatus Cassin, 1848, Proc. Acad. Nat. Sci. Phila., 3: 330—St. Paul's River, Liberia.

Ganta: 1 male; July 4, 1948.

Wing 235 mm.

In this single specimen the whole sides of the head are white with black shaft stripes, the black feathers of the chin have white bases, white is mixed with the black of the throat, and, though the wings are badly worn, the remiges appear to have very narrow white tips.

This specimen is in heavy body molt and is renewing the tail, but shows no molt of the badly worn flight feathers.

Field notes.—At Ganta, very few white-crested hornbills were seen; they were in pairs in heavy second growth (H.B.).

Ceratogymna elata Temminck

Buceros elatus Temminck, 1831, Pl. col., livr. 88, pl. 521, fig. 1—no locality (=Sierra Leone).

Ganta: 1 male, 1 female; February 16, 22, 1948.

Wing: male, 385; female, 349 mm.

Field notes.—Though the yellow-casqued hornbill was common at Firestone Plantation and Ganta, its flesh is esteemed as food by the natives, and so this interesting, large bird is becoming scarce (H.B.).

Family TYTONIDAE

Tyto alba affinis Blyth

Strix affinis Blyth, 1862, Ibis, 1862: 388—Cape of Good Hope.

Firestone Plantation: 1 male, 1 sex?; May 2, 1947, June 11, 1948.

Wing: male, 287; sex?, 281 mm.

Though a widespread species, the barn owl hitherto has not been recorded in Liberia. Both specimens have the ground color of the under parts nearly pure white, indicating that they are adult.

Family STRIGIDAE

Ciccaba woodfordii nuchalis Sharpe

Syrnium nuchale Sharpe, 1870, Ibis, 1870: 487—Fanti.

Ganta: 1 female, 1 sex?, 1 juvenile; March 26, 30, 1948.

Wing: sex?, 226; female, 250 mm.

We have for comparison five adults and one juvenile from Cameroon. Their wing measurements are: male, 242, 249, 256; female, 250, 261 mm. The unsexed Liberian bird is considerably darker, especially on the upper parts, than the female. These two birds differ considerably from four of the five Cameroon specimens in the darker and duller brown of the upper parts and by having more black in the face, but the paler bird is very similar to the fifth Cameroon specimen. The juvenile bird from Liberia is also darker than the juvenile in a similar stage of plumage from Cameroon. This suggests that the Upper Guinea population may average darker than the Lower Guinea birds.

Field notes.—At Ganta wood owls may be common, judging by the widespread calls heard at night in the high forest. A nestling was taken from its nest hole in March (H.B.).

Otus leucotis leucotis Temminck

Strix leucotis Temminck, 1820, Pl. col., livr. 3, pl. 16—Senegal.

Firestone Plantation: 1 female; April 21, 1948.

Wing 184 mm.

This specimen has the characteristic blackish crown and the fine barring of wings and tail; it shows no wing molt. Though previously recorded from Sierra Leone, where it is generally distributed but rather rare, and Gold Coast and Togo, where it is known from only one or two localities (Bannerman, 1933, p. 25), this appears to be the first record of the species for Liberia.

Bubo africanus cinerascens Guérin-Meneville

Bubo cinerascens Guérin-Meneville, 1843, Rev. Zool., p. 321—Adowa, Ethiopia.

Firestone Plantation: 1 male; June 11, 1948.

Ganta: 1 male; February 17, 1948.

These two birds are in the usual dark brown color phase. The February bird shows pronounced wear on the remiges; the June bird is completing the wing molt. Though a widespread race, apparently there is only one other record for Liberia (Allen, 1930, p. 689).

Scotopelia ussheri Sharpe

Scotopelia ussheri Sharpe, 1871, Ibis, 1871: 101—Fanti, Gold Coast.

Firestone Plantation: 1 female adult; June 11, 1948.

Ganta: 1 male immature; July 7, 1948.

Wing: female adult, 332; male immature, 326 mm. Tarsus: female adult, 59; male immature, 59 mm. Tail: female adult, 185; male immature, 175 mm. Culmen: female adult, 44; male immature, 43 mm.

Bannerman (1933, pp. 49–50) had but three records of this species: one from the Gold Coast, one from Gallilee Mountain, Liberia, and one from Sierra Leone. As Bannerman (loc. cit.) pointed out, the plate (Ibis, 1871, pl. xii) is much too yellow; our adult is much more reddish chestnut. In his description Bannerman calls the head and neck dull brown and the rest of the upper parts uniform bright

rufous; in our adult there is little difference between the color of the head and back.

The immature male, with a full-grown wing, is largely in adult plumage but still retains much of the buffy white juvenile plumage of the head. The rest of the plumage is similar to that of the adult, but is paler below and above, and there is more of a tendency for the upper wing coverts to be obscurely barred. Though Bannerman gives the iris as yellow, the plate has it brown, as recorded for our specimens. The adult, in worn plumage, shows both wing and body molt.

Field notes.—The Firestone Plantation specimen of the fishing-owl was found sitting on a log at the margin of a pool, on the edge of high forest; the Ganta specimen was on a perch above a stream in high, dark forest. Both were found by night-hunting with a flashlight. Soft parts: female adult, iris very dark brown, bill blackish green, cere yellow, legs lemon yellow; male immature, iris black, bill black, cere yellowish, legs yellow (H.B.).

Family CAPRIMULGIDAE

Caprimulgus inornatus inornatus Heuglin

Caprimulgus inornatus Heuglin, 1869, Orn. Nordost. Africa, 1: 129—Bogosland.

Firestone Plantation: 1 sex?; April 29, 1947.

Wing 154 mm.

This nightjar has hitherto been recorded west only to the Gold Coast, the present record being a range extension and a new record for Liberia.

The specimen compares well with the description of the cinnamon-rufous phase of the present race. As Chicago Museum has no comparative material, Dr. Chapin compared it with the material in the American Museum and writes in part: "It is a female of the rufous phase, fairly similar to those in the collection here, except for that small patch of gray on the upper part of the body. Despite the late date it must undoubtedly have been a migrant from the breeding area well to the north."

One would have expected *C. i. vinacea-brunneus* Bannerman, of French Niger Territory, rather than the nominate form, to occur this far west. There are no specimens of *vinacea-brunneus* here or in New York, but it is described as consistently different, "with very remarkable coloring," according to Bannerman.

Field notes.—The specimen of the plain nightjar was secured by night-hunting with a flashlight, on a trail through second growth (H.B.).

Caprimulgus natalensis accrae Shelley

Caprimulgus accrae Shelley, 1875, Ibis, 1875: 379—Accra, Gold Coast Colony.

Firestone Plantation: 1 male immature, 2 female adults; May 27, June 24, 25, 1948.

Female: wing, 151; tail, 96 mm.

Both adults (June) show wing molt.

The immature male (May 27) retains a few fluffy black and buffy-white barred feathers of the nestling plumage but is almost completely in first year plumage. This plumage is similar to that of the adult female, but the upper parts have the general tone slightly more brownish-tinged; the black marks generally are broad and many of the feathers have small white or buffy tips; on the under parts the white throat patch is smaller; the lower breast and abdomen are much less heavily barred; and the ground color has a slight ochraceous tinge.

Field notes.—At Firestone Plantation, the white-tailed nightjar was uncommon; those seen were found by night-hunting with a flashlight. They were sitting on trails or on cleared farmlands. At Ganta, very few were seen in the night-hunting, from January to April (H.B.).

Macrodipteryx longipennis Shaw

Caprimulgus longipennis Shaw, 1796, Nat. Misc., 8: pl. 265—Sierra Leone.

Ganta: 1 female; February 7, 1948.

Wing 167 mm.

The plumage is fairly fresh, and there is no wing molt. Bouet (1931, p. 435) was the first to record this species for Liberia.

Scotornis climacurus climacurus Vieillot

Caprimulgus climacurus Vieillot, 1825, Gal. Ois., 1: 195, pl. 122—Senegal.

Firestone Plantation: 2 males; October 2, 1947, April 24, 1948.

Ganta: 4 males, 3 females, 1 sex?; February 7, 8, March 7, 1948.

Wing: males, 137, 139, 142, 143, 145, 146; females, 141, 143 mm.

Tail: males, 168, 202, 208, 220; females, 162, 164, 171 mm.

The October specimen was taken in the July to November period, for which Bannerman (1933, p. 177) had no records for the coastal West African countries.

The range of variation in this series is not great. A female from Uganda is very similar to the present females; a male from the same place (both April 20) is slightly more rufous on the back, but all appear to belong to the same race.

Field notes.—At Firestone Plantation the long-tailed nightjar was very common, from April to January. It was seen at night, when it was found on roads, trails, and open ground in new farms. However, it must retreat to the densest thickets during the day, as I have never found one during daylight hours. The call of this bird is an exceedingly rapid, cricket-like note usually heard on moonlight nights from July to September.

At Ganta it was common and was recorded from January to April (H.B.).

Scotornis climacurus sclateri Bates

Scotornis climacurus sclateri Bates, 1927, Ibis, 1927: 20—Ngaundere, northern Cameroon.

Ganta: 1 male; March 7, 1948.

Wing 144; tail 203 mm.

In the series of *S. c. climacurus* listed above, there is comparatively little variation. The present specimen is so distinctly colored, falling completely outside of the range of variation of that series, especially in the much deeper, darker rufous breast, and the much darker, more rufous upper wing coverts and scapulars, that I refer it to *sclateri*, with the description of which it agrees.

Bannerman (1933, p. 178) has already recorded this form (whose normal range is in Nigeria, where it breeds from May to October) from Ashanti and Sierra Leone in January. However, this subspecies probably normally migrates southward from its breeding range and it is possible that these dark northern individuals may prove to be individual variants of the paler form, *S. c. climacurus*.

Family APODIDAE

Apus affinis affinis Gray

Cypselus affinis Gray, 1830, Illustr. Indian Zool., 1, pt. 2: pl. 35, fig. 2—no locality (=Ganges).

Firestone Plantation: 1 female, 1 sex?; October 20, November 20, 1947.

These two birds are just completing their molt, and are in fresh, blackish plumage.

Chapin (1939, p. 449) has pointed out that the differences between *abessynicus* and *affinis* are very slight, and he does not recognize the former.

Field notes.—At Firestone Plantation these swifts were common, occurring in small colonies. They attach their nests under the eaves of brick dwellings. The period of greatest nesting activity appeared to be October to July, but nest building was observed nearly every month of the year (H.B.).

Cypsiurus parvus brachypterus Reichenow

Tachornis parvus brachypterus Reichenow, 1903, Vög. Afr., 2: 386—Chinchoxo, Cabinda.

Firestone Plantation: 1 female; June 16, 1948.

Wing 125 mm.

This specimen shows no wing molt.

Family CAPITONIDAE

Melanobucco bidentatus bidentatus Shaw

Bucco bidentatus Shaw, 1798, Naturalist's Miscell., 10: 393—Barbary.

Firestone Plantation: 1 male adult; November 25, 1947.

Wing 100 mm.

Though the tooth-billed barbet is of rather wide distribution in West Africa, it appears to have been unrecorded hitherto for Liberia.

Bannerman (1933, p. 367) includes this species in *Pogonornis*, along with *dubius* and *rolleti*; Ripley (1945, pp. 557, 561) includes it in his comprehensive genus *Lybius*. Here I am following Chapin's usage (1939, p. 531).

Field notes.—The specimen was calling from a tree in heavy second growth (H.B.).

Tricholaema hirsutum hirsutum Swainson

Pogonias hirsutus Swainson, 1821, Zool. illustr., 2: 22—Africa, Gold Coast Colony.

Firestone Plantation: 1 female; June 17, 1948.

Wing 94; tail 51; culmen 27 mm.

Bannerman (1933, pp. 376-379) considers *hirsutum* and *flavipunctata* to be separable species. I follow Chapin (1939, p. 518), who considers them conspecific.

This specimen has the well-developed white stripe over the eye, and another on the malar stripe; the throat is black, each feather with a small, yellowish white spot on the corners; the central and hind crown has a scattering of small yellow spots. As it is in fresh plumage, with the wing molt nearly complete, it can be considered adult.

Though Bannerman (1933, p. 377) writes that the female has a black throat, and only the immature has it speckled, Bates (1931, p. 269) reports the throat as mottled in the female, as seems borne out by the present specimen.

Gymnobucco calvus calvus Lafresnaye

Bucco calvus Lafresnaye, 1841, Rev. Zool., 1841: 241—Ashanti.

Firestone Plantation: 3 male adults, 4 female adults; September 26–December 19, 1947.

Wing: males, 91, 91, 92; females, 89, 90, 92, 96 mm.

The above measurements are but little smaller than measurements of three birds from Mount Cameroon (4,000 feet, near Buea, type locality of *major*): males, 91, 93; female, 99 mm. Two Nigeria birds measure: Ifon, Ondo Province, male, 87; Ilaro, Abeokuta, male, 88 mm.

Though not common, the naked-faced barbet was recorded by Allen as generally distributed in Liberia.

Field notes.—At Firestone Plantation the naked-faced barbet was uncommon. Several colonies of six to ten pairs were found nesting in second-growth trees in the period from July to September. On one occasion in June a large number of birds were seen feeding in a tall tree on the edge of the Farmington River.

At Ganta many single birds were seen and heard calling in tall forest trees in March and April (H.B.).

Pogoniulus subsulphureus chrysopygus Shelley

Barbatula chrysopyga Shelley, 1889, Ibis, 1889: 477—Gold Coast.

Firestone Plantation: 1 male, 4 females; July 14–16, 1948.

Wing: male, 49; females, 46, 48, 48, 50 mm.

Field notes.—At Firestone Plantation the yellow-throated tinker-bird was common in second growth. Nest holes in a dead tree trunk in a swamp were occupied during October. At Ganta the species was common; in March a bird was seen excavating in a rotten stump in a forest swamp (H.B.).

Pogoniulus scolopaceus scolopaceus Bonaparte

Xylobucco scolopaceus Bonaparte, 1850, *Consp. Av.*, p. 141—Ashantee.

Firestone Plantation: 1 male, 3 females, 1 sex?; May 4–July 15, 1948.

Ganta: 1 male, February 27, 1948.

Wing: males, 54, 54; females, 53, 53, 53 mm.

Field notes.—At Firestone Plantation a number of speckled tinker birds came regularly to a flowering tree in search of visiting insects (H.B.).

Family INDICATORIDAE

Indicator conirostris ussheri Sharpe

Indicator ussheri Sharpe, 1902, *Bull. Brit. Orn. Cl.*, 12: 80—Fanti, Gold Coast.

Firestone Plantation: 1 female adult; September 30, 1947.

Wing 85; tail 49; tarsus 16; bill 12.5; exposed culmen 10.5 mm.

This specimen of the thick-billed honey-guide gives a notable northwest extension of range of the species; Bannerman (1933, p. 415) had but two specimens, apparently the same ones described by Shelley (1891), and writes that this form is known only from Fanti, Gold Coast. Chapin (1939, p. 543) has seen skins intermediate between *conirostris* and *riggenbachi* and suggests that *minor* and *conirostris* may be conspecific.

Dr. Chapin also compared this specimen for me in New York. He writes (in part): "We have no skin of *Indicator conirostris ussheri*, but I am convinced that your bird from Liberia belongs to that race. It has the green crown and the greenish wash on the undersurface as it should, and it differs from any skin of nominate *conirostris* in the American Museum collection. The nominate race occasionally has a slight greenish tinge on the crown, but it is always grayer beneath and usually somewhat darker there."

The shorter wing and tail of the present female suggest that Bannerman's two unsexed specimens (wing 91–92, tail 58–59) were males.

The specimen is recorded as taken in dense second growth, and as having one large egg in the oviduct.

Field notes.—The specimen of the thick-billed honey-guide was collected close to a nesting colony of the naked-faced barbet (*G. calvus*) in second growth (H.B.).

***Prodotiscus insignis flavodorsalis* Bannerman**

Prodotiscus insignis flavodorsalis Bannerman, 1923, Bull. Brit. Orn. Cl., 43: 161—Beoumi, Ivory Coast.

Ganta: 1 female; April 5, 1948.

Wing 65; tail 43 mm.

This rare little honey-guide has been recorded from Sierra Leone and the Ivory Coast, but this is the first record for Liberia.

We have no comparative material but this specimen has a rather bright greenish lower back, with rather obscure yellowish golden tips to some of the rump feathers and upper tail coverts. Bannerman (1933, p. 421) gives this race as larger than *P. i. insignis* (wing, male, 67 against 62–65 mm.; female, 64 against 61 mm.), but Chapin (1939, p. 536) gives *P. i. insignis* as having a wing of 62–68 mm.

Field notes.—The specimen was taken in heavy second growth (H.B.).

Family PICIDAE

***Campethera maculosa* Valenciennes**

Picus maculosus Valenciennes, 1826, Dict. Sci. Nat., 40: 173—Senegal.

Firestone Plantation: 2 males, 1 sex?; May 3–June 17, 1948.

Ganta: 1 sex?; February 29, 1948.

Wing: males, 102, 102 mm.

This species is said to have unmarked underwing coverts, and three of our specimens agree in this character. The fourth specimen, apparently an adult male, has a few small but well-defined dark spots on the yellow underwing coverts.

The May and June birds show wing molt; the February bird does not.

Field notes.—Several golden-backed woodpeckers were seen in trees in second growth (H.B.).

***Campethera nivosa nivos*a Swainson**

Dendromus nivosus Swainson, 1837, Bds. West Afr., 2: 162—West Africa.

Firestone Plantation: 1 male, 1 female; April 20, 26, 1948.

Ganta: 1 female; March 6, 1948.

Wing: male, 88; females, 87, 91 mm.

The two Firestone Plantation birds are similar (except, of course, that the female lacks the red nape of the male). The Ganta bird differs rather strikingly from the other two in the under parts, for the dark parts are paler and more olive, and the pale portions more yellowish; also, the spots on the breast are larger, and the abdomen is much less heavily marked. On the upper parts the general color is slightly more golden olive. These differences suggested that the birds of the interior might be different from the birds of the coastal area. More material would be necessary to determine this finally. However, we have a series of seven birds of the related race *C. n. efulensis* from Bitye, Cameroon (which differ chiefly in this series in the darker, less golden olive upper parts, and in the average larger spots on a darker ground color on the breast) and the range of variation in this series from one locality is very similar to that shown by the three Liberia birds. Presumably it is individual variation.

Field notes.—The buff-spotted woodpecker was most often met with in second growth (H.B.).

***Dendropicos lugubris lugubris* Hartlaub**

Dendropicos lugubris Hartlaub, 1857, Syst. Orn. W. Afr., p. 178—Aguapim, Gold Coast.

Firestone Plantation: 2 males; November 15, 30, 1947.

Ganta: 1 male; April 2, 1948.

Wing 84, 84, 87 mm.

Allen (1930, p. 697) mentions but three records of this species, and says the melancholy woodpecker is evidently rare in Liberia.

Field notes.—Very few of these woodpeckers were seen, and all of them were in second growth (H.B.).

***Mesopicos pyrrhogaster* Malherbe**

Picus (Chloropicus) pyrrhogaster Malherbe, 1845, Rev. Zool., 1845: 399—Sierra Leone.

Firestone Plantation: 1 male, 1 female; May 18, 19, 1948.

Ganta: 1 male; March 21, 1948.

Wing: males, 115, 120; female, 114 mm.

The two May birds show wing molt; the March bird, in worn plumage, does not.

Field notes.—At Firestone Plantation the fire-bellied woodpecker was common in secondary forest. Many were seen in dead trees along the Farmington River. At Ganta, nestlings were found in March (H.B.).

Family EURYLAEMIDAE

Smithornis capensis delacouri Bannerman

Smithornis capensis delacouri Bannerman, 1923, Bull. Brit. Orn. Cl., 43: 160—Bandama, Ivory Coast.

Ganta: 2 male adults; February 4, 24, 1948.

Wing 71, 71; culmen 16, 18 mm.

This subspecies has been known hitherto only from very few specimens, from the Ivory and the Gold Coast. The present specimens thus represent the first record for Liberia, and a westward extension of the range of the species. The gray collar on the hind neck is quite distinct in both specimens. Neither specimen shows wing molt.

Field notes.—At Ganta, my attention was attracted to the Ivory Coast broadbill by its calls coming from the dark undergrowth of the high forest on a late afternoon. I was peering into the shadows and suddenly saw a flash of white a few feet above the ground. Then followed a very energetic flip, and the bird described a circle, returning to the same perch. This maneuver was accompanied by a shrill "Kerrrrrrr." The quality of this note was startling, and recalled the sound produced by the wing quills of a little West Indian tody during bursts of flight. This bird was taken, and a second bird was heard calling until dark. I later learned by watching other broadbills that the white flash is given when the bird raises the black feathers and exposes the concealed white bases of the feathers (H.B.).

(This display flight has been described for the Cameroon race, and there is some question as to whether the sound is vocal or is produced by the wing quills; see Bannerman, 1936, p. 8.)

Family MOTACILLIDAE

Motacilla aguimp vidua Sundevall

Motacilla vidua Sundevall, 1850, Oefv. Vet.-Akad. Forh., 7: 128—Assouan, Upper Egypt.

Firestone Plantation: 2 males, 1 sex?; September 16–October 21, 1947.

Wing: males, 89, 93 mm.

Field notes.—At Firestone Plantation the pied wagtail was observed on the Farmington River from September to July. It was in song from April to July (H.B.).

Budytes flavus subsp.

Firestone Plantation: 1 female; January 3, 1947.

Wing 78 mm.

Allen (1930, p. 728) records *B. f. flavus* as the race wintering in Liberia, as does Bannerman (1936, p. 66). However, four other races occur in winter migration in West Africa, and some of them may be found in Liberia (Bannerman, 1936, pp. 66 ff.). Sclater (1930, p. 388) has pointed out that the identification of yellow wagtails in winter quarters is very uncertain, and I hesitate to assign the present specimen.

Field notes.—At Firestone Plantation, in 1947, this wagtail arrived on October 7; by the following March the species was gone (H.B.).

Anthus leucophrys gouldii Fraser

Anthus gouldii Fraser, 1843, Proc. Zool. Soc. London, 1843: 27—Cape Palmas, Liberia.

Firestone Plantation: 2 males, 3 females; January 3–May 27, 1948.

Wing: male, 96; females, 85, 86, 87 mm. Tail: male, 71; females, 59, 60, 61 mm. Culmen; male, 16; females, 16, 17, 17 mm. Tarsus: male, 26; females, 24, 24, 25 mm.

One male is in the immature plumage, with conspicuous pale edges to the feathers of the upper parts, giving a blotched appearance; the tail has the outer rectrices patterned as in the adult, but the contrast between the buffy pale areas and the blackish dark areas is more pronounced, and the line of meeting is rather sharp.

One of the May birds shows wing molt; the others are in somewhat worn plumage.

Field notes.—At Firestone Plantation the plain-backed pipit was noted in large numbers from November to January, evidently the peak of a movement across the country. Later, from April to July, only scattered pairs were seen, and there was some evidence of breeding (H.B.).

Macronyx croceus croceus Vieillot

Alda crocea Vieillot, 1816, Nouv. Dict. Hist. Nat., 1: 365—Java(=Senegal).

Firestone Plantation: 7 males, 3 females; April 20–May 19, 1948.

Wing: males, 92, 92, 95, 96, 97, 97; females, 89, 91, 92 mm.

These April and May birds are in slightly to somewhat worn plumage; none are molting their remiges.

Allen (1930, p. 728) considered this species of very local occurrence.

Field notes.—At Firestone Plantation the yellow-throated long-claw was common on the grasslands and the newly cleared ground. Songs were heard from May to July, and nesting began in June (H.B.).

Family TIMALIIDAE

Phyllanthus atripennis atripennis Swainson

Crateropus atripennis Swainson, 1837, Bds. West Afr., 1: 278—West Africa, Senegal.

Ganta: 2 males, 1 female; February 2–March 9, 1948.

Wing: males, 112, 124; female, 121 mm.

The wings of these birds are rather worn; one of them (Feb. 2) shows wing molt. All three birds have the sooty black on the fore-back, continuing onto the breast, which Bannerman (1936, p. 100) considered to be an individual variation, though occurring in most of the specimens he examined.

Though this is a rare bird in collections, it has been recorded from some six localities in Liberia (see Allen, 1930, p. 714).

Field notes.—The black-winged babbler was common at Ganta. It was a very retiring bird, travelling in flocks, and keeping near the ground in thick second growth. The birds move along in leisurely fashion, uttering characteristic chattering notes. In March I saw a pair apparently mating, the male following the female and singing (H.B.).

Macrosphenus kempii kempii Sharpe

Amaurocichla kempii Sharpe, 1905, Bull. Brit. Orn. Cl., 15: 38—Bo, Sierra Leone.

Firestone Plantation: 1 male; May 13, 1948.

Wing 60; tail 40; culmen 20.5; tarsus 21 mm.

The remiges show no molt.

This is one of the rare birds of Upper Guinea. Recorded from Sierra Leone to the Lower Niger, it has been taken once before in Liberia at Baraktown (Allen, 1930, p. 724).

Allen (loc. cit.) puts this genus in the family Certhiidae and Delacour (1947, p. 12) places it in the Sylviidae. For the time

being at least I am following Sclater (1930, p. 365) and Bannerman (1936, p. 125) in placing it in the Timaliidae. Recently Mr. S. Marchant has described a Nigerian race of this species as *M. k. flammeus* (Bull. Brit. Orn. Cl., 70: 26).

Family PYCNONOTIDAE¹

***Pycnonotus barbatus inornatus* Fraser**

Ixos inornatus Fraser, 1843, Proc. Zool. Soc. London, 1843: 27—Cape Coast.

Firestone Plantation: 1 male, 2 females; October 9, 1947, May 13, 27, 1948.

Wing: male, 98; female, 91, 92 mm.

The May birds are molting their wings; the October bird is in worn plumage.

Field notes.—At Firestone Plantation and Ganta the garden bulbul was very common, nesting from April to June (H.B.).

***Andropadus virens erythropterus* Hartlaub**

Andropadus erythropterus Hartlaub, 1858, Proc. Zool. Soc. London, 1858: 292—Ashanti (*griseszens* of authors).

Firestone Plantation: 2 male adults, 1 male immature, 5 female adults; September 14, 1947–January 4, 1948.

Wing: male, 78, 79; female, 68, 70, 70, 71, 73 mm.

Only one specimen, taken in November, shows wing molt.

Note on *Andropadus virens*

This plain, olive-colored bulbul is distinguished from its nearest relatives by its short, relatively broad bill, and its lack of a white eye-ring.

A number of revisions, complete or partial, have been made, and races described, in recent years, with varying conclusions, notably by Bannerman (1924, 1936), van Someren (1932), Peters and Loveridge (1936), Sclater (1930), Jackson and Sclater (1938), and Grant and Mackworth-Praed (1940).

Sclater stands at one extreme, with but two races recognized (others have been described since), and van Someren at the other, with four races in Kenya and Uganda (another race has since been described).

¹ The arrangement follows Delacour's review of the genera and species (1943a, pp. 17–28) in part.

A survey of our material, nearly 125 specimens and representing all the range of the bird except Zanzibar Island (race *zanzibaricus*) and the southeastern part of the range, and a survey of published discussions indicates variation in color as follows: Upper Guinea birds (six from Liberia) are dark and dull with least greenish or yellowish. Intergrades occur in Nigeria (one specimen, Ondo Province), with the paler, brighter Cameroon bird that has more yellow in the under parts and more greenish olive in the upper parts (nineteen specimens). Two Angola birds (N. Cuanza) are very similar, as is a southern Anglo-Egyptian Sudan bird. Sixty-six birds from central and southern Uganda (except Bwamba Valley birds) have slightly brighter brownish olive upper parts and below are somewhat brighter, with the flanks and breast washed with a more yellowish olive and the yellow of the abdomen brighter. Eleven Bwamba Valley birds are intermediate between the other Uganda birds and the Cameroon birds, as is a single bird from the Belgian Congo (Ituri). Kilimanjaro, Moshi, and Amani birds (ten specimens) are paler and duller again. Zanzibar birds (I have seen no specimens) are said to be greener above and grayer below. I have not seen birds from the southeastern extremity of the range, but they are said to be like Kilimanjaro birds. The size variation is as follows:

	Male	Female
Liberia.....	78, 79	69, 70, 70, 72
Nigeria.....	76	...
Cameroon.....	76, 76, 76, 77, 77, 77, 80, 80	(10) 70-79 (av. 73.4)
Angola.....	80	73
Sudan.....		79
Bwamba Valley, Uganda.....	75, 75, 76, 77, 79	73, 73, 73, 73, 74, 75
Central and southern Uganda.....	(20) 76-84 (av. 79.9)	(10) 76-81 (av. 78.5)
Kilimanjaro-Amani.....	76, 80, 81, 81, 82, 84, 86	80, 80
Ganda Forest.....	81	76
Zanzibar.....	85 (Pakenham)	

The races it seems advisable to recognize as an aid to discussing this variation seem to be five: *erythropterus* (*grisescens* of authors), *virens*, *holochlorus*, *zombensis*, *zanzibaricus*.

Andropadus virens erythropterus Hartlaub

Andropadus erythropterus Hartlaub, 1858, Proc. Zool. Soc. London, 1858: 292—Ashanti.

Andropadus virens var. *griseus* Reichenow, 1904, Vog. Afr., 3: 412—Upper Guinea.

Andropadus virens saturator Bannerman, 1924, Rev. Zool. Afr., 12: 24—Gunnal, Portuguese Guinea.

This is the form of Upper Guinea.

Though the name *erythropterus* was based on a young bird, and Reichenow synonymized it with *virens* when he described var. *griseus*, and Bannerman (1936, pp. 195, 196) and Sclater (1930, p. 395) followed Reichenow, the name *erythropterus* must be used. The Ashanti population, type locality of *erythropterus*, is referable to the Upper Guinea race, according to Bannerman, so the name must apply.

This is a very distinct race, all individuals of which can be separated from any other populations in our material. Intergradation with the next race, *virens*, occurs in the Nigeria area, as shown by our specimen from Ondo Province.

Specimens examined.—Liberia, 8; Nigeria, Ondo Province, 1 (intermediate).

***Andropadus virens virens* Cassin**

Andropadus virens virens Cassin, 1857, Proc. Acad. Nat. Sci. Phila., 1857: 34—Cape Lopez, Gabon.

This is the Lower Guinea form, that extends from Cameroon to Angola, southern Sudan, and intergrades with the next race, *holochlorus*, in the eastern Belgian Congo and the Bwamba Valley at least. In Nigeria it intergrades with *erythropterus*.

It is quite distinct from *erythropterus* in the paler, more greenish olive upper parts, paler brown tail, and much more yellowish under parts.

The Bwamba Valley birds are so nearly intermediate in color between other Uganda birds (*holochlorus*) and Cameroon *virens* that allocation is doubtful. Van Someren in his manuscript list considers them near *virens*, and in view of their smaller size that is perhaps the best allocation.

Van Someren (1922, p. 189) suggested that Angola birds were separable on the basis of the throat being paler than the breast, but our two Angola birds fit well into our Cameroon series, as does the Sudan bird.

Specimens examined.—Cameroon, 19; Angola, 2; Anglo-Egyptian Sudan, 1; Belgian Congo, Ituri, 1; Bwamba Valley, 11.

***Andropadus virens holochlorus* van Someren**

Eurillas virens holochlorus van Someren, 1922, Nov. Zool., 29: 189.

This is the Uganda race, intergrading with *virens* in the Bwamba Valley and eastern Congo (see above).

When compared with 19 Cameroon *virens*, our series of 66 birds differs in slightly larger size, somewhat more brownish yellow tinge on flanks and breast, brighter yellow area of under parts, and more brownish, warmer olive upper parts.

Most workers have relegated this race to the synonymy of *virens*, including Sclater (1930, p. 395), who recognized that eastern birds were larger; Bannerman (1936, p. 195); and Grant and Mackworth-Praed (1940, p. 64). However, Peters and Loveridge (1936, p. 176) support *holochlorus* on color characters, and on both color and size it probably should be recognized as a race fairly well separable on critical examination.

On a separability test on present material 18 Cameroon birds were mixed with 64 Uganda birds (immatures being eliminated) and sorted on color without reference to labels: 69 out of the 82 birds (about 84 per cent) were correctly allocated.

Specimens examined.—Central and southern Uganda except Bwamba Valley, 66.

***Andropadus virens zombensis* Shelley**

Andropadus zombensis Shelley, 1894, Ibis, 1894: 10—Zomba.

Andropadus marwitzi Reichenow, 1895, Orn. Monatsber., 3: 188—Marangu, Kilimanjaro.

Andropadus virens shimba van Someren, 1930, Jour. East Afr. Ug. N. H. Soc., no. 37, p. 197—Ganda forest.

This is the form of coastal Kenya and southward on the eastern edge of the range of the species.

In 1924, Bannerman (p. 25) called *zombensis* a species separate from *virens* and he suggested that the Shimba Hills bird was also separable, a population that van Someren later named *shimba*. However, later, Bannerman (1936, p. 195) synonymized *zombensis* and *marwitzi* with *virens*, following Sclater (1930, p. 395). Grant and Mackworth-Praed (1940, p. 64) recognize *zombensis*, with *marwitzi* and *shimba* as synonyms. I have seen no topotypical *zombensis* and am following Grant and Mackworth-Praed in considering *marwitzi* the same. The race *shimba* was described as like *marwitzi* but smaller and having the breast and flanks washed with

a grayish tinge (wing 76–81). I have two Ganda Forest birds (topotypical *shimba*) and comparing them with ten Kilimanjaro-Amani specimens (topotypical *marwitzi*), I am unable to appreciate as of subspecific value the slight difference in color described, and the measurements (see above) are inconclusive.

Compared with *holochlorus* from Uganda these birds are similar in size but considerably paler below and slightly greener above. They are also rather similar to *virens* from Cameroon, but are paler below, with a brighter, pale yellow wash, and are paler green above. Individually, all are separable from all the preceding races.

Specimens examined.—Kilimanjaro, 2; Moshi, 5; Amani, 3; Ganda, 2.

***Andropadus virens zanzibaricus* Pakenham**

Eurillas virens zanzibaricus Pakenham, 1935, Bull. B. O. C., 55: 111—Zanzibar.

I have seen no material of this race, which is restricted to Zanzibar. Grant and Mackworth-Praed (1940, p. 64) recognize it and say it is purer olive-green above than *virens*, and duller below, but not as bright as *zombensis*.

***Andropadus gracilis extremus* Hartert**

Andropadus gracilis extremus Hartert, 1922, Nov. Zool., 29: 369—near Mattra, Jong River, Sierra Leone.

Firestone Plantation: 1 male; October 2, 1947.

Ganta: 3 males; April 3–11, 1948.

Wing 70, 70, 72, 73 mm.

The three April birds are completing their wing molt.

Note on *Andropadus gracilis*

The species *Andropadus ansorgei* has been confused by many authors with this species. *A. a. ansorgei* has been considered a race of *A. gracilis*; *A. a. muniensis* a synonym of *A. g. gracilis*; and *A. a. kavirondensis* a race of *A. gracilis* (see under *A. ansorgei*). Removing these, variation is as follows: Birds from the eastern part of the range average slightly larger than those from the western part; western Lower Guinea birds are darkest and with the dullest yellow; Upper Guinea birds are paler, with the brightest and most intense yellow wash on the under parts; birds from the eastern part of the range (Uganda) are palest, with bright but pale wash on the under

parts and gray on the chest more evident. Three well-defined races seem indicated.

***Andropadus gracilis extremus* Hartert**

Andropadus gracilis extremus Hartert, 1922, Nov. Zool., 29: 369—near Mattra, near Sherbro, Jong River, Sierra Leone.

This is the Upper Guinea form of which we have six specimens from Liberia and Sierra Leone. The yellow of the under parts is much brighter than in the other two forms, and the general darkness is moderate. Wing: male, 70, 70, 72, 73; female, 66, 69. Hartert (1922, p. 369) wrote that a series from the Lower Niger appears to be this race but some individuals approach *A. g. gracilis*. By contrast we have from Ondo Province, west of the Niger, two specimens that are good *A. g. gracilis*, with little or no tendency toward *extremus*.

***Andropadus gracilis gracilis* Cabanis**

Andropadus gracilis Cabanis, 1880, Orn. Centralb., p. 147—Angola.

I am assuming that the eight Cameroon specimens we have are the same as Angola specimens. Two Nigeria specimens (Ondo Province) agree well with them.

Compared with our specimens of *extremus* from Upper Guinea all these specimens are distinguishable on casual inspection by the much darker under parts, with less bright yellow. The upper parts are also darker and browner olive. Wing: male, 66, 70, 71, 74; female, 68, 69, 69, 70, 71, 72.

Andropadus minor Bocage, 1880, described from Angola, is a synonym of *A. g. gracilis* according to Reichenow (1904-5, p. 414).

***Andropadus gracilis ugandae* van Someren**

Andropadus ugandae van Someren, 1915, Bull. B. O. C., 35: 127—Mabira Forest.

This quite distinct eastern subspecies is represented in our collection by twenty-seven specimens from Uganda, including ten from Mabira, the type locality of *ugandae*, and others from Bwamba Valley, Bugoma, Budongo, Entebbe, and Lugalambo. Comparing these specimens with ten specimens of *A. g. gracilis* from Cameroon and Nigeria they are so different that every specimen is separable on casual inspection on the much paler under parts, with a brighter yellow wash on the belly. The gray of the throat extends more distinctly farther on to the breast, and the upper parts are lighter olive.

Indeed, these Uganda birds in color are as close to *extremus* of Upper Guinea, but the under parts are paler, the yellow of the under parts is not as intense, and the throat and breast are grayer. All specimens are separable on critical examination. The Uganda birds measure: wing, male, (10) 69–79 (av. 74.9); female, 67–79 (av. 72.7), thus averaging slightly larger than the eastern populations of both other races.

Though this subspecies appears distinct enough in our material to recognize without question, it is currently not admitted as a valid subspecies, and the Uganda birds are usually included with *A. g. gracilis*.

The distinctiveness of the Uganda birds was not recognized until 1915 when van Someren described it as intermediate between *A. gracilis* and *A. minor* but differing from both in having the throat and breast grayish, the upper side more olive, the tail more rust-colored, and the upper and lower eyelids white (wing 65–70 mm.).

The name *A. minor*, used by van Someren in 1915 and again in 1922 (p. 188), has been synonymized with *A. g. gracilis* by Grant and Mackworth-Praed (1947, p. 46), who did not recognize *ugandae*. The name *A. minor* Bocage was used by some other authors for the species *gracilis* until 1912 at least (Ibis, 1912, p. 226), though Reichenow (1904–5, p. 414) had already placed it in synonymy. Van Someren (1922, p. 188) referred two Toro birds to *minor* because they were of small size and the gray was restricted to the throat. None of our birds are separable on such characters.

In Hartert's report on types in the Tring Museum in 1922 (p. 370), he recognized the distinctiveness of *ugandae* and placed it as a race of *gracilis*. Bannerman (1924, p. 27) also recognized this subspecies. Gyldenstolpe (1924, p. 184), in referring specimens from Sembilike Valley and the Ituri Forest to *g. gracilis*, compared them with a series from Kakamega Forest, which last presumably were *Andropadus ansorgei kavirondensis*.

Slater (1930, p. 392) did not recognize "*ugandae*," saying it was doubtfully distinct; Bannerman (1936, p. 191) is doubtful of its validity and Jackson and Slater (1938, p. 876) do not recognize it. Grant and Mackworth-Praed (1947, p. 46) apparently also include Uganda birds in *A. g. gracilis*. However, as stated above, *ugandae* appears as a well-marked race when Uganda and Cameroon birds are compared.

Note on *Andropadus ansorgei*

This species is very similar to *A. gracilis*, from which it is distinguished by gray under parts with brownish olive on the flanks (rather than a yellowish wash on the under parts, with more greenish olive flanks) and browner olive rather than greener olive upper parts (see Hartert's original description for details).

Hartert described this from Nigeria as a species in 1907, and Reichenow (1910, p. 85) extended its range to Spanish Guinea. Hartert reaffirmed its specific distinctness (1922, p. 370), saying it had nothing to do with *Andropadus gracilis*. In 1924 Bannerman (1924, p. 27) in his review of the African bulbuls, accorded it specific rank (later he reversed his opinion). Van Someren (1922, p. 188) when describing *kavirondensis* from Kenya compared it with *ansorgei*, considering both species as did Hartert in 1922 (loc. cit.). In 1924, Grote (Orn. Monatsber., 32, pp. 70, 71) described another form, *muniensis*, and considered *ansorgei* to have three races.

However, until Serle (1950, p. 375) reported *ansorgei* as living along with *A. gracilis* in Cameroon, and quoted Chapin as saying that it also does so in southern Nigeria and in the Ituri Forest, its status has been misunderstood. Bannerman (1924, p. 27) listed *ansorgei* as a species he had not seen and he recorded from Cameroon, Congo Forest, and Libokwa grayish specimens of "*gracilis*" which he was unable to allocate to subspecies. These were probably this species, as Grote has pointed out. Sclater (1930, p. 392) considered *ansorgei* a race of *gracilis*, restricted to southern Nigeria, *kavirondensis* a race of *gracilis*, and *muniensis* a synonym of *G. gracilis*; Bannerman in 1936 (p. 191) followed Sclater's treatment of the western birds, saying he had seen no specimens; Jackson and Sclater (1938, p. 877) also followed Sclater's treatment.

Chicago Natural History Museum has received a Cameroon specimen (Sangmelina) from A. I. Good, and three specimens from Kenya, which caused me to go over the question, and I agree with Grote that *ansorgei* must be considered a species with geographical races.

Andropadus ansorgei ansorgei Hartert

Andropadus ansorgei Hartert, 1907, Bull. B. O. C., 21: 10—Degama, southern Nigeria.

Wing (male and female) 72–74.

Andropadus ansorgei muniensis Grote

Andropadus ansorgei muniensis Grote, 1924, Orn. Monatsber., 32: 70—Akonangi, Muni area, Spanish Guinea.

This form was described as like *ansorgei* of southern Nigeria but generally darker-colored, head somewhat grayer, size larger (wing 76–78) and with a slight difference in the wing tip. If valid, our Cameroon bird (female, wing 70), and perhaps Serle's Cameroon and Ituri Forest birds may belong here.

***Andropadus ansorgei kavirondensis* van Someren**

Charitillas kavirondensis van Someren, 1920, Bull. B. O. C., 40: 95—Kakamega Forest, Kenya.

This form was described as near *ansorgei* from Nigeria but larger (wing 70–80), darker olive above and darker on crown, the breast and belly paler grayish, the feathers not so olive brown. Hartert in 1922 (p. 370) reaffirmed the distinctiveness of this as a species. Grote in 1924, reporting Hartert's comparison of *muniensis* with *kavirondensis*, writes that *muniensis* is a shade browner on the fore-breast and somewhat browner on the sides of the stomach and the undertail coverts, while the uppertail coverts are somewhat darker red brown.

Our three specimens (Yala River, one; Nyarondo, two: wing, male 71, 77; female 72) are quite distinct from our single Cameroon bird in the paler olive brown upper parts and the paler, less brownish flanks and undertail coverts.

***Andropadus curvirostris leoninus* Bates**

Andropadus curvirostris leoninus Bates, 1930, Bull. Brit. Orn. Cl., 51: 52—Buedu, Sierra Leone.

Though this species is recorded from Liberia we have no specimens.

The following remarks concern chiefly the Lower Guinea and East African birds.

In the Systema (1930, p. 394) Sclater recognizes no races of this species. Bates (1930, p. 52) described an Upper Guinea form *A. c. leoninus* from Sierra Leone that Bannerman (1936, p. 188) accepts as differing from *A. c. curvirostris* in the darker upper parts and more grayish under parts. We have no specimens of this form in Chicago Natural History Museum.

Andropadus alexandri Oustalet, 1892, described from the Ubangi River, is usually considered a synonym of *A. c. curvirostris*. Van Someren (1916, p. 439) found that some Uganda specimens had olive underwing coverts, as described for *alexandri*, while others

had yellow underwing coverts, as described for *A. c. curvirostris*. He was doubtful about recognizing the two, and finally (1922, p. 187) listed all Uganda birds as *A. c.? alexanderi*.

We have seven specimens from Cameroon and one from Nigeria that are presumably *A. c. curvirostris*. They show considerable variation in the upper parts, including the tail, from deeper greenish olive to paler brownish olive; in the under parts from paler yellowish olive to darker, brownish olive; and in the underwing coverts from more to less olive or yellow.

Some forty-eight Uganda (south to Toro and Bwamba Valley) and Kenya (Silwa) birds show only moderate variation in the upper parts. Compared with the Cameroon-Nigeria series they average paler and more brownish olive above. Though none match the darkest Cameroon birds, there is much overlap with the paler half of the Cameroon series. The variation in the color of the underwing coverts is not greater than in the Cameroon series. On the under parts the Uganda birds tend to be slightly paler, and brighter, more yellowish than the Cameroon birds but the difference between the two populations is less than on the upper parts.

However, from farther south than the above forty-eight Uganda birds we have two males from Ankole that differ rather more. Their upper parts are dark green, with little brownish olive, more like the darkest Cameroon bird, while their under parts are darker and more grayish green, with less yellow than either of the other series.

Though the above differences are apparent, it is noteworthy that the older skins tend to be the brownish olive ones, the more recently taken ones the clearer greenish olive; and it is probable that the differences are due, perhaps wholly, to foxing of the plumage.

In size there is little difference between the populations. Measurements are as follows: Cameroon: males, 78, 78, 82, 82, 83; females, 75. Uganda: males, (10) 78-86 (av. 81.2); females, (10) 76-87 (av. 80.7).

Apparently only the two races recognized by Bannerman, *A. c. leoninus* from Upper Guinea, and *A. c. curvirostris* from Lower Guinea to Kenya, should be accepted.

***Andropadus latirostris* congener Reichenow**

Andropadus congener Reichenow, 1897, Jour. Orn., (5), 4: 45—Agome Tongbe, Togoland.

Firestone Plantation: 1 male; November 1, 1947.

The specimen shows no wing molt.

Compared with five specimens of *P. l. latirostris* from Cameroon, the darker upper parts and the much darker tail are very apparent. Bannerman (1936, p. 195) gives the range of this Upper Guinea race as extending to southern Nigeria near Lagos, and the Niger River; and the Lower Guinea race (*P. l. latirostris*) only as far north as Cameroon. We have one specimen from Ifon, Ondo Province, Nigeria (Aug. 4, 1934, male, testes much enlarged, R. Boulton), that compares well with the Cameroon specimens, and not at all with the dark *congener*. This seems to extend the range of *P. l. latirostris* somewhat.

***Andropadus gracilirostris gracilirostris* Strickland**

Andropadus gracilirostris Strickland, 1844, Proc. Zool. Soc. London, 1844: 101—Fernando Po.

Ganta: 1 male; April 3, 1948.

Wing 85 mm.

Wing molt is in progress.

This specimen compares well with a Cameroon specimen.

***Chlorocichla simplex* Hartlaub**

Trichophorus simplex Hartlaub, 1855, Jour. Orn., 1855: 356—Rio Boutry, Gold Coast.

Firestone Plantation: 2 males, 2 females, 2 sex?; October 10–November 10, 1947.

Ganta: 3 males, 1 female; February 2–18, 1948.

Wing: males, 104, 107; females, 99, 100 mm.

One October, one November, and one February bird are molting remiges; the others are in more or less worn plumage.

Compared with two adults from Cameroon, the latter collected in 1895 and 1924, the present series is somewhat darker and less brownish generally above, the sort of difference one would expect from foxing of the old skins. On the under parts the Liberia skins have the dusky wash on the breast somewhat less conspicuous than the Cameroon specimens.

Allen (1930, p. 710) considers the "Simple Love-leaf" an uncommon species in Liberia.

***Thescelocichla leucopleura* Cassin**

Phyllostrophus leucopleurus Cassin, 1855, Proc. Acad. Nat. Sci. Phila., 7: 328—Moonda River, Gaboon.

Firestone Plantation: 2 males, 2 females; September 30–October 28, 1947.

Wing: males, 113, 114; females, 107, 107 mm.

None shows wing molt.

Bannerman (1936, p. 155) remarks that this species is notable for a wide range without geographical variation, and in a recent letter Chapin writes me there seems no great difference between his Upper and Lower Guinea forest material in the American Museum. Besides the above specimens we have six from Cameroon. The four Liberia specimens, compared with the six Cameroon specimens, have the lower breast and abdomen considerably whiter, less washed with yellow; the breast clearer gray and the white shaft stripes more clearly defined (less washed with greenish olive); the throat with less of a yellowish olive tinge; the lower mandible blacker (less brownish); the sides of the head streaked with grayish black and white (less brownish olive and whitish); the top of the head and foreback more dark grayish (less olive); the lower back, rump, and tail darker and less olive; the wings considerably darker and less brownish.

If further material should show this difference to be constant enough to recognize an Upper Guinea race, the name *nivosa* Hartlaub (1855, p. 356) is available.

Phyllastrephus baumanni Reichenow

Phyllostrephus baumanni Reichenow, 1895, Orn. Monatsber., 3: 96—Misa-hohe, Togoland.

Ganta: 1 female; March 20, 1948.

Wing 69; tail 73 mm.

The specimen shows no wing molt. There seems to be only one other record for Liberia, at Paiata by Allen (1930, p. 710).

Criniger barbatus barbatus Temminck

Tricophorus barbatus Temminck, 1821, Pl. Col., livr. 15, pl. 88—Sierra Leone.

Ganta: 1 male; March 6, 1948.

Wing 100 mm.

The wings of this specimen are molting.

Criniger calurus verreauxi Sharpe

Criniger verreauxi Sharpe, 1871, Cat. Afr. Birds, p. 21—Fanti, Gold Coast.

Firestone Plantation: 1 male; November 2, 1947.

Wing 98 mm.

The wings of this specimen are molting.

According to Allen (1930, p. 706) the white-bearded bulbul is an uncommon bird in Liberia.

The present specimen has the green (not rufous) tail of *verreauxi*; otherwise it compares well with a series of six *calurus* from Cameroon, though slightly brighter yellow below.

Family MUSCICAPIDAE

Alseonax cassini Heine

Muscicapa cassini Heine, 1859, Jour. Orn., 7: 428—Camma River, Gaboon.

Firestone Plantation: 1 male adult, 1 immature (sex?); May 24, June 16, 1948.

Wing: male adult, 67 mm.

The adult, June 16, is largely in fresh plumage and is just completing its wing molt; the immature, May 24, though with full-grown wing and tail, is still largely in the fluffy, spotted nesting plumage.

Allen (1930, p. 701) included this species in his list as *A. lugens*.

Field notes.—Cassin's gray flycatcher was common at Firestone Plantation along the large rivers, where I noted pairs sitting on the branches of trees that had fallen into the water. Young birds were noted during May and June (H.B.).

Fraseria cinerascens cinerascens Hartlaub

Fraseria cinerascens Hartlaub, 1857, Orn. West Afr., p. 102—Fanti.

Ganta: 1 male, 2 females; February 19–March 7, 1948.

Wing: male, 80; females, 73, 74 mm.

None of these birds show wing molt.

Field notes.—The white-browed forest flycatcher was uncommon at Firestone Plantation. One pair was seen on the Farmington River, perching on dead tree trunks just above the water, and one edged into the water to bathe. At Ganta these birds were seen perched on dead trees close to a stream (H.B.).

Artomyias ussheri Sharpe

Artomyias ussheri Sharpe, 1871, Ibis, 1871: 416—Abrobonko, Gold Coast.

Firestone Plantation: 1 female; May 23, 1948.

Wing 86 mm.

The specimen shows no wing molt.

Field notes.—At Firestone Plantation, a pair of Ussher's dusky flycatchers was found feeding its young. The nest was placed in a swamp among a small bunch of air plants attached to a dead tree about fifty feet from the water (H.B.).

Stizorhina finschii Sharpe

Cassinia finschii Sharpe, 1870, Ibis, 1870: 53—Fanti, Gold Coast.

Firestone Plantation: 1 male; October 25, 1947.

Ganta: 1 female; March 3, 1948.

Wing: male, 103; female, 93. Tarsus: 21 mm.

This appears to be only the third time that this rare species has been recorded from Liberia. The two other records were made by Buttikofer (Allen, 1930, p. 706).

Bias musicus musicus Vieillot

Platyrhynchos musicus Vieillot, 1818, Nouv. Dict. Hist. Nat., 27: 15—Malimbe, Portuguese Congo.

Firestone Plantation: 2 male immatures; October 12, 1947, May 21, 1948.

Ganta: 1 male adult, 1 male immature, 3 females; January 27, April 5, 1948.

Wing: male adult, 87; male immatures, 85, 86, 86; females, 85, 86, 87 mm.

The immature males are in mixed plumage, partly black like the adult, and partly brownish like the immature.

None of the adults, January and April, show wing molt.

Field notes.—The black and white flycatcher was uncommon at Firestone Plantation and was found only in the savanna shrubbery. The song was heard from April to July. A female was carrying nesting material in May. At Ganta a pair was nesting in April, the nest being hidden in dense foliage in a tall tree. Here songs were heard from February to April (H.B.).

Platysteira cyanea cyanea Müller

Muscicapa cyanea Müller, 1776, Syst. Nat., Suppl., p. 170—Senegal.

Firestone Plantation: 1 male; June 20, 1948.

Ganta: 2 males; February 15, April 2, 1948.

Wing 64, 65, 66 mm.

The wings of the June bird are molting; those of the other two are not.

Field notes.—The scarlet-spectacled flycatcher was uncommon at Firestone Plantation. Its musical song was heard from April to July, coming from high forest trees. In July I saw a party of some twenty birds moving rapidly through the trees; many of these birds were singing. A few were heard in song in secondary forest at Ganta (H.B.).

***Dyaphorophya castanea hormophora* Reichenow**

Dyaphorophya hormophora Reichenow, 1901, Jour. Orn., 51: 285—Misahohe, Togoland.

Firestone Plantation: 2 males, 1 female; October 26, November 2, 1947.

Wing: males, 54, 55; female, 53.

None of these specimens show wing molt. Both males have the distinct white band across the hind neck.

Allen (1930, pp. 702, 703) has this bird in his list twice, as *D. castanea* and as *D. hormophora*.

Field notes.—At Firestone Plantation the chestnut wattle-eye was uncommon. It haunted the undergrowth of secondary forest. At Ganta the species was seen occasionally, always in pairs (H.B.).

***Trochocercus nitens reichenowi* Sharpe**

Trochocercus reichenowi Sharpe, 1904, Ibis, 1904: 630—Fanti, Gold Coast.

Firestone Plantation: 1 male adult; October 10, 1947.

Ganta: 1 male adult; March 9, 1948.

Wing 61 (wing measurements of this race are recorded up to 68 mm.).

The remiges are not being molted in either bird.

Compared with three males of *T. n. nitens* (wing 66, 66, 68), River Ja, Cameroon, the darker under parts of this specimen are readily apparent. In addition, the Cameroon specimens have an indistinct paler grayish-white line just below the black breast, a character lacking in the Liberia birds.

***Terpsiphone rufiventer nigriceps* Hartlaub**

Muscipeta nigriceps Hartlaub, 1855, Jour. Orn., 3: 355—Guinea.

Ganta: 4 male adults, 2 female adults, 2 female immatures, 1 sex?; February 3–April 26, 1948.

Wing: male adults, 76, 78, 78, 80; female adults, 71, 74; female immatures, 71, 74 mm. Tail: male adults, 90, 101, 119, 160; female adults, 77, 78; female immatures, 68, 76 mm.

None of these specimens show wing molt.

There is little variation in color in each sex and age group, but in the adult male the extension of the central rectrices beyond the others is very variable, ranging from 17 to 63 mm.

I am following Chapin (1948) in considering *nigriceps* a race of *rufiventer*.

Field notes.—At Firestone Plantation, the black-headed paradise flycatcher was an uncommon bird of the undergrowth of secondary forests, apparently with a preference for the vicinity of streams. Three nests were seen, one in March and two in May. One was three feet above the ground in the tri-forked crown of a slender bush at the edge of a forest swamp; the other two were in small trees under high forest shade on the bank of a stream. One cup-shaped nest was of fine grasses and feathers; another was of plant down, soft grasses, moss and lichens. During June many young birds were on the wing, being fed by their parents, in high forest.

At Ganta, this uncommon bird was noted in secondary and high forest (H.B.).

Family TURDIDAE

***Saxicola rubetra rubetra* Linnaeus**

Monticola rubetra Linnaeus, 1758, Syst. Nat., 10th ed., p. 186—Europe (Sweden).

Firestone Plantation: 1 male; February 2, 1948.

Wing 78 mm.

Though a common winter visitor to West Africa, the winechat has been recorded only twice before in Liberia. Allen (1930, p. 713) cites Chubb's record from the St. Paul's River, January 16, 1905, and Bouet (1931, p. 493) writes of seeing the species near the River Du in March.

***Cossypha cyanocampter cyanocampter* Bonaparte**

Bessonornis cyanocampter Bonaparte, 1850, Consp. Gen. Avium, 1: 301—part. ignot.; Dabokrom, Gold Coast.

Firestone Plantation: 2 males; October 11, 1947, May 25, 1948.

Ganta: 2 males; February 25, October 9, 1948.

Wing 86, 86, 87, 88 mm.

The March and May birds are molting their wings; the February and October birds are not.

Those four males, apparently all adult, show considerable variation in the color of the back. In one it is heavily tinged with blue; in one other only slightly; and the other two have none.

Field notes.—The blue-shouldered robin-chat was common at both Firestone Plantation and Ganta. It was a bird of the low impenetrable second growth, whence its delightful song was heard throughout the day from January to July (H.B.).

***Alethe castanea diademata* Bonaparte**

Bessonornis diadematus Bonaparte, 1850, *Consp. Gen. Avium*, 1: 302—Guinea.

Firestone Plantation: 1 male, 1 female, 1 sex?; November 15, 20, 1947.

Wing: male, 97; female, 89 mm.

Field notes.—At Firestone Plantation, the white-tailed fire-crested alethe was common, haunting the undergrowth of the high forest. Native boys often snared the birds at forest streams. They respond readily to an imitation of their beautiful song, but as they are extremely wary it requires a keen eye to detect them peering out of the deep shadows (H.B.).

Family SYLVIIDAE

***Camaroptera brevicauda tinctoria* Cassin**

Syncopla tinctoria Cassin, 1855, *Proc. Acad. Nat. Sci. Phila.*, 7: 325—Moonda River, Gaboon.

Firestone Plantation: 1 female; July 15, 1948.

Wing 50 mm.

The remiges are being molted.

Field notes.—The gray-backed camaroptera was common at both Firestone Plantation and Ganta, frequenting dense thickets. Its song period was from April to July (H.B.).

***Cisticola lateralis lateralis* Fraser**

Drymoica lateralis Fraser, 1843, *Proc. Zool. Soc. London*, 1843: 16—Cape Palmas, Liberia.

Firestone Plantation: 4 males, 1 female; October 20, 1947, April 20–June 5, 1948.

Ganta: 3 male adults, 1 sex?; January 27–April 10, 1948.

Wing: males, 63, 64, 67, 68, 69, 69; female, 55 mm.

The January bird is completing its wing molt, but none of the others show it. All are in fresh or fairly fresh plumage except the October female, which is somewhat worn.

The males are all rather uniformly sooty blackish above, the palest comparing fairly well with the figure of the type of *C. l. lateralis* as given by Lynes (1930, pl. 11). Lynes (op. cit. pp. 284, 285) was uncertain, but inclined to consider that *C. l. lateralis* had a foxy-colored adult plumage. Our material, all apparently adult, shows no foxy-colored individuals. This may indicate that such a plumage either is rare, or is an immature plumage only.

Lynes gives the range of *C. l. lateralis* as extending from Portuguese Guinea to Cameroon, fusing to the east with *antinorii* and to the south with *modesta*. Bannerman (1939, p. 163) follows this, including French Cameroon in the range of *lateralis*. However, we have eight birds from Cameroon (Tibari, one; Yoko, two; and Yaounde, five; wing 63–69 mm.) that vary from fresh to worn plumage and are a variable series. They agree in size with the Liberia birds, but all are strikingly different from our Liberia birds in the paler, browner back; the paler, less distinct edgings to the flight feathers; and the more ochraceous, less gray flanks. They are 100 per cent separable, individually and at a glance, from the Liberia birds. These Cameroon birds compare much better with a series of seven *C. l. antinorii* from Uganda, allowing for a dull brownish foxing of some of the older Uganda skins, and it seems necessary to extend the range of *antinorii* westward from the northern Belgian Congo to cover Cameroon. Despite discrepancies, the Cameroon birds agree very much better with *antinorii* than with Liberia *lateralis*.

The race *C. l. modesta* of the southern Belgian Congo is described as smaller (males, 58–66 mm.) and with brighter flanks. I have no material of this race, but the description does not apply.

Field notes.—The whistling grass-warbler was common at both collecting stations, where it was found in low thickets. It was very tame and would come within arm's length. The song period was from November to July (H.B.).

***Prinia superciliosa melanorhyncha* Jardine and Fraser**

Drymoica melanorhynchus Jardine and Fraser, 1852, Contr. Orn., p. 60—
Abomey, Dahomey.

Ganta: 1 sex?; March 9, 1948.

Wing 47; tail 45 mm.

This specimen shows wing molt, and the faded brownish plumage of the upper parts is being replaced by darker, more olive, fresh feathers.

Family HIRUNDINIDAE

Hirundo rustica rustica Linnaeus

Hirundo rustica Linnaeus, 1758, Syst. Nat., 10th ed., p. 191—Europe (Sweden).

Ganta: 1 male adult; February 29, 1948.

Wing 124; tail 107 mm.

The bird is in fresh plumage and shows no molt. Bouet (1931, p. 488) gives its period of stay as September 7 to May 1–10.

Field notes.—The European swallow arrived in large flocks in the Firestone Plantation area in late September, 1947; at Ganta the birds were gone by April 1, 1948 (H.B.).

Hirundo nigrita Gray

Hirundo nigrita Gray, 1845, Gen. Birds, 1: pl. 20—Niger River.

Firestone Plantation: 1 male adult, 1 male immature; May 24, 1948.

The adult is completing its wing molt.

Field notes.—The white-gorgeted swallow was common on the Farmington River, where immature birds were seen in June (H.B.).

Pseudohirundo griseopyga liberiae Bannerman

Pseudohirundo griseopyga liberiae Bannerman, 1937, Bull. Brit. Orn. Cl., 58: 8—Nanna Kru, Liberia.

Firestone Plantation: 2 males, 1 female, 1 sex?; November 15, 1947.

Wing: males, 92, 94; female, 94; sex?, 93 mm. Tail: males, 80, 81; female, 75; sex?, 84 mm.

Hitherto, this subspecies of brown-winged swallow seems to have been known only from the two specimens collected by Lowe, on which Bannerman based the subspecies, and Lowe's observation that it was not uncommon.

The present series, in clean fresh plumage, is fairly uniform. It differs strikingly from the specimens of the much grayer-rumped *P. g. griseopyga* from East and South Africa in our collection, in

the much browner rump, and slightly in the slightly whiter under wing coverts, and the average slightly paler crowns. We lack adequate comparative material of the "brown-rumped" *melbina* from the Congo area, and Dr. Chapin kindly compared our specimens with Congo birds. He writes me that wear greatly affects the color of the rump, the color changing from brown to gray; that the transition in color from eastern to western Africa is very gradual, fresh-plumaged birds from southern Nigeria being almost exactly like my Liberian specimens in the color of the rump. The Liberian birds differ, however, in having shorter outer tail-feathers with noticeably narrower tips and also in having the wings a little shorter than those of specimens from most other parts of Africa, making the recognition of the race *liberiae* advisable.

Field notes.—In addition to the specimens taken, a flock of twenty of these swallows was seen coursing over the grasslands in September and four pairs were seen in June (H.B.).

Family CAMPEPHAGIDAE

Campephaga phoenicea Latham

Ampelis phoenicea Latham, 1790, Ind. Orn., 1: 367.

Ganta: 1 male adult; February 3, 1948.

Wing 98 mm.

This specimen is molting its wings.

This wide-ranging species has hitherto not been recorded from Liberia.

Campephaga quiscalina quiscalina Finsch

Campephaga quiscalina Finsch, 1869, Ibis, 1869: 189—Fanti, Gold Coast.

Ganta: 1 male adult, 1 female adult; March 10, 28, 1948.

Wing: male, 98; female, 97 mm.

Neither bird is molting its wing.

The male has the purple throat and steel green flanks of the species. In the female the yellow of the under parts is immaculate and in the gray of the crown are a few scattered white feathers, evidently abnormal.

This species, which is rather uncommon in West Africa, has been recorded but once before in Liberia, on the Mesurado River by Stampfli (Allen, 1930, p. 700).

Family DICRURIDAE

Dicrurus adsimilis atactus Oberholser

Dicrurus modestus atactus Oberholser, 1899, Proc. U. S. Nat. Mus., 22: 35—
Fanti, Gold Coast.

Firestone Plantation: 2 males, 1 female; September 20–December 19, 1947.

Ganta: 3 males, 1 female, 1 sex?; January 24–March 20, 1948.

Wing: males (Firestone Plantation), 129, 133; males (Ganta), 127, 132, 134 mm.

Though these specimens were collected at various times of the year, none shows wing molt.

The birds from Firestone Plantation have the deep velvety blue gloss on the upper parts, compared with the more steel blue of *adsimilis*, as described. The Ganta birds are somewhat duller, more velvety, less glossy on the back.

Dicrurus sharpei Oustalet

Dicrurus sharpei Oustalet, 1879, N. Arch. Mus. Paris, (2), 2: 79—Gaboon.

Ganta: 2 males, 2 females; January 26–February 5, 1948.

Wing: males, 110, 111; females, 101, 106. Tail: males, 90, 90; females, 89, 90 mm.

None of these birds were molting their wings.

Though a widespread species in West Africa, this species has hitherto not been recorded from Liberia. Vaurie (1949, p. 219) considers this a race of *D. ludwigii*.

Family PRIONOPIDAE

Sigmodus caniceps caniceps Bonaparte

Sigmodus caniceps Bonaparte, 1851, Consp. Gen. Avium, 1: 365—West Africa
(Butri River, Gold Coast).

Firestone Plantation: 3 males, 2 females; September 20, 1947, May 23, 24, 1948.

Wing: males, 113, 116, 119; females, 119, 119 mm.

The three May birds are completing their wing molt; the two September birds show no wing molt.

Field notes.—The red-billed shrike was uncommon; along the Farmington River and near swamps it was seen in dense growth (H.B.).

Family LANIIDAE

Lanius collaris smithii Fraser

Collurio smithii Fraser, 1843, Proc. Zool. Soc. London, 1843: 16—Cape Coast Castle.

Firestone Plantation: 2 males, 3 females; October 27, 1947, April 26–May 28, 1948.

Ganta: 1 (sex?) immature; March 10, 1948.

Wing: males, 88, 88; females, 83, 85, 87 mm.

The immature bird is still short-tailed and was evidently not long out of the nest. Only the October adult was renewing its primaries.

Though Allen (1930, p. 729) found this a common and conspicuous bird in Liberia, there had been but a single previous record, at Robertport.

Field notes.—The West African fiscal shrike was a bird of the open country, common about human habitations (H.B.).

Lanius senator senator Linnaeus

Lanius senator Linnaeus, 1758, Syst. Nat., ed. 10, p. 97—India (error; subst. Rhine Valley).

Ganta: 1 sex?; January 27, 1948.

Though the winter home of both this form and *L. s. badius* is in West Africa, the species hitherto has been unrecorded for Liberia. The present specimen has the white in the wing characteristic of *L. s. senator*.

The specimen is apparently a male, and though not molting has a mixed plumage of juvenal and first winter feathers, with a mixture of fresh black and worn brownish remiges and rectrices.

Laniarius leucorhynchus Hartlaub

Telephonus leucorhynchus Hartlaub, 1848, Rev. Zool., 1848: 108—Elmina, Gold Coast Colony.

Firestone Plantation: 1 male adult, 1 female adult; September 14, 1947, April 21, 1948.

Ganta: 2 male adults, 1 male immature; February 2–April 3, 1948.

Wing: male adults, 95, 96, 97; male immature, 90; female, 92 mm.

The immature has the base of the bill blackish; otherwise the bill is whitish. Two of the April birds are molting their primaries.

Old Cameroon birds have a brownish tinge, probably the result of foxing.

Apparently there are only two other, old records for Liberia, including a nesting at Robertport (Allen, 1930, p. 726).

Field notes.—The sooty boubou, as this shrike is called, was uncommon at the Firestone Plantation, but common at Ganta. This was a very alert shrike, extremely difficult to observe. It kept to the dark undergrowth of the second growth and secondary forest. It can be attracted by an imitation of its call note. One bird was seen carrying nesting material in March (H.B.).

Dryoscopus gambensis gambensis Lichtenstein

Lanius gambensis Lichtenstein, 1823, Verz. Doubl., p. 48—Senegambia.

Firestone Plantation: 2 males, 3 females; May 2–June 30, 1948.

Ganta: 2 males, 1 female; March 30–April 1, 1948.

Wing: males, 89, 92, 94, 95; females, 87, 88, 89, 91 mm.

Three of the males (March 30, April 1, and May 6) are molting their primaries.

The females have the paler under parts and grayer back of this race as compared with an example of *congicus*.

Allen (1930, p. 726) considered this a rare species in Liberia.

Field notes.—At the borders of second growth many of these Gambian puff-back shrikes were seen as they moved quickly out of sight into the thick undergrowth (H.B.).

Chaunonotus sabini sabini Gray

Thamnophilus sabini Gray, 1831, Zool. Misc., 1: 7—Sierra Leone.

Firestone Plantation: 2 males, 2 females; October 11, 1947–May 26, 1948.

Ganta: 2 males; February 29, March 15, 1948.

Wing: males, 81, 82, 83, 83; females, 81, 83 mm.

Three males are in black and white plumage; another is largely so, apparently having almost completed its molt from the brown plumage (May 16) but some of the black and some of the white feathers are mixed or tipped with brown, in a "retarded" type of plumage. The female (May 26) is molting its wing feathers.

These females have the paler, more ochraceous tail as compared with a River Ja, Cameroon, female (*melanoleucus*) as described.

Bannerman (1939, p. 409) gives two stations for this species in Liberia; Allen (1930) does not include it in his list.

Field notes.—Sabine's puff-back shrike was uncommon. It was not very shy, and calls were frequently heard in heavy second growth (H.B.).

***Tchagra australis ussheri* Sharpe**

Laniarius ussheri Sharpe, 1882, in Layard's Bds. S. Afr., p. 397—Volta River, Gold Coast.

Firestone Plantation: 1 male, 1 female; October 9, 1947, May 27, 1948.

Ganta: 1 male, 1 female; March 10, 15, 1948.

Wing: males, 72, 75; females, 73, 74 mm.

The May female is molting its wing feathers.

Compared with three specimens of *frater* from the River Ja, Cameroon (wing, female, 76, 77, 77), the present specimens show the assigned characters of clearer gray under parts and average paler upper parts of *ussheri*.

This is the second time the species has been taken in Liberia, the earlier record being by Allen (1930, p. 725), who secured four specimens at Gbanga.

***Chlorophoneus multicolor multicolor* Gray**

Laniarius multicolor Gray, 1849, Gen. Birds, 1: 229, pl. 72—West Africa, Accra plains.

Ganta: 1 male, 1 female; February 10, 18, 1948.

Wing: male, 103; female, 99.

Neither bird is molting its wing feathers.

Both of these birds are in the scarlet-breasted phase. Allen (1930, pp. 725, 726) included this species under three names in his list: *Chlorophoneus multicolor*, a rare species with four records for the country; *Chlorophoneus melamprosopus*, one record for Liberia, the type, which is a golden-yellow or orange-breasted color phase; and *Chlorophoneus zosterops*, known only from the type, which is a not quite adult female of the present species preserved in spirit (Bannerman, 1939, p. 431).

Field notes.—The only two many-colored bush-shrikes seen were in the treetops of high forest (H.B.).

***Malaconotus cruentus cruentus* Lesson**

Vanga cruenta Lesson, 1830, Cent. Zool., p. 198, pl. 65—Cape Coast.

Ganta: 5 males, 3 females; January 24 to February 24, 1948.

Wing: males, 108, 109, 109, 113, 113; females, 101, 104, 106 mm.

There are few specimens of this fiery-breasted bush-shrike in existence (Bannerman, 1939, p. 442) and there was but one previous record from Liberia, a single specimen taken at Gbanga, September 25, 1926 (Allen, 1930, p. 727).

There is considerable variation in the amount of vermilion-red wash on the under parts, both the reddest- and the yellowest-breasted birds being females.

In comparison of this series with three specimens of *gabonensis* from the River Ja, Cameroon (wing, females, 107, 111, 113), the latter averages more scarlet on the under parts, though the extremes of the two series approach each other closely. The white stripe over the eye may be slightly more distinct in *gabonensis*, as Bannerman (loc. cit.) states; the greater extent of the gray on the back of *cruentus* is slight, but the blacker primary coverts of *cruentus* (pointed out by Gadow, 1883, pp. 155, 156) seem a better character. All the secondary coverts, lesser, median, and greater, are green in both subspecies. The measurements of both these series run slightly larger than those given by Bannerman (1939, pp. 442, 443).

Field notes.—The fiery-breasted bush-shrike was common at Ganta. Its calls were heard quite frequently in the thick cover of abandoned farms and second growth, where the bird remained near the ground. Although not shy it is very cautious, hiding behind trunks and thickets and often remaining motionless for ten minutes at a time (H.B.).

Nicator chloris chloris Valenciennes

Lanius chloris Valenciennes, 1826, Dict. Sci. Nat., 40: 226—Galam, Senegal.

Ganta: 3 males, 4 females; January 25–April 2, 1948.

Wing: males, 104, 108, 109; females, 88, 88, 92.

Only one of these birds, that taken February 10, shows wing molt.

Though the range of this subspecies is given by Bannerman (1939, p. 445) as from Senegal to the Belgian Congo and east to Uganda, there is evidently some variation in plumage in West Africa. The present series, compared with a series of six skins from Cameroon (wing, males, 104, 112; females, 91, 91, 91 mm.), has the upper parts distinctly greener and darker, less yellowish-tinged, and this is especially true of the rump; the undertail coverts are slightly less

vivid yellow; and the grayish wash on the breast is slightly less distinct as a band. However, topotypical (Senegal) birds must be compared, and there are two other names available for West Africa populations: *Malaconotus peli* Bonaparte, 1850 (Ashanti) and *Laniarius lepidus* Cassin, 1855 (Liberia).

Field notes.—The West African nicator shrike was common at the Firestone Plantation and Ganta. It was very shy, found in thick second growth and in the undergrowth of high forest. Often the bird can be called up by imitating its pleasant whistling note (H.B.).

Family ORIOLIDAE

Oriolus brachyryncus brachyryncus Swainson

Oriolus brachyryncus Swainson, 1837, Bds. West Africa, 2: 35—Sierra Leone.

Firestone Plantation: 3 males, 1 female; September 14–December 20, 1947, May 18, 1948.

Ganta: 1 male, 1 female; February 23, March 15, 1948.

Wing: male adult, 122 mm.

The male of May 18 is renewing its remiges; the female collected on February 23 is molting the first-year remiges.

Field notes.—At Firestone Plantation the black-headed oriole was uncommon. It was noted in high forest, where the males were often heard singing from the tops of tall trees. At Ganta it was also uncommon; in April a pair was nesting in high forest.

In the period from January to July this species was usually seen in pairs (H.B.).

Oriolus nigripennis Verreaux

Oriolus nigripennis Verreaux, 1855, Jour. Orn., 3: 105—Gaboon River.

Ganta: 2 females; January 25, February 5, 1948.

Wing 109, 117 mm.

The black-winged oriole has been recorded only once before from Liberia, by Allen (1930, p. 745), who found it at Banga and Bomboma.

Our only comparative material is a male from Angola. The sexes are supposed to be alike, and the minor differences between the Angola and the Liberian birds, notably the brighter yellow on the upper parts and the clearer black tail of the Angola bird, may be significant but need to be substantiated by more material.

Field notes.—Although the black-winged oriole was uncommon at Ganta, it was noted in pairs in the high forest from January to April (H.B.).

Family CORVIDAE

Corvus albus Müller

Corvus albus Müller, 1776, Syst. Nat., Suppl., p. 85—Senegal.

Ganta: 1 male, 1 female; January 29, 31, 1948.

Wing: male, 336; female, 333 mm.

Both birds are in somewhat worn plumage, with no wing molt.

Field notes.—The pied crow was common at both the Firestone Plantation and Ganta, and was apparently a resident throughout the year. Crows were attracted in large numbers to bush fires, to feast on the animals trying to escape (H.B.).

Family STURNIDAE

Lamprotornis¹ cupreocauda Hartlaub

Lamprocolius cupreocauda Hartlaub, 1857, Syst. Orn. West Afr., p. 119—Sierra Leone.

Firestone Plantation: 5 males, 4 females; October 28–December 10, 1947, May 5–25, 1948.

Wing: males, 121, 124, 124, 124, 128; females, 123, 124, 125 mm.

Four of the five May birds are molting their wing feathers.

Field notes.—At the Firestone Plantation this species was uncommon, although it was found in small flocks in second growth swamps from September to January and again from April to July. One flock of eight was in an area of dead trees in a swamp. At Ganta a few flocks were seen from February to April (H.B.).

Family ZOSTEROPIDAE

Zosterops senegalensis demeryi Buttikofer

Zosterops demeryi Buttikofer, 1890, Notes Leyden Mus., 12: 202—Robertsport, Liberia.

Firestone Plantation: 2 males, 1 female; July 13–16, 1948.

Wing: males, 52, 53; female, 52.

¹ For reasons for synonymizing *Lamprocolius* with *Lamprotornis* see Amadon, 1943, p. 3.

These three specimens differ from two specimens of *Z. s. senegalensis* from Cameroon in the much darker, more olive, and less yellow upper parts, and in the considerably duller yellow under parts. The only previous records of the species for Liberia seem to be the two specimens Buttikofer used for the types of two new species (see below).

The name used by Bannerman (1948, p. 124) for the dark race of *Zosterops senegalensis* inhabiting the coastal part of Upper Guinea is *Z. s. leoninus* Sclater, 1927 (Bull. Brit. Orn. Cl., 47: 86, type locality Bo, Sierra Leone). The present series of Liberia birds agrees with the description of *leoninus*. However, there are two other, earlier names for this race: *Z. demeryi* Buttikofer, 1890 (Notes Leyden Museum, 12: 202, type locality Robertsport, Liberia), and *Z. obsoleta* Buttikofer, 1890 (op. cit., p. 203, type locality Robertsport).

In 1927, when Sclater described *leoninus* he made no mention of these two names, nor did Claude Grant when he reviewed the species (Ibis, 1945, p. 5). In 1948 Bannerman writes: "Specimens recorded from Robertsport, Liberia, as *Zosterops demeryi* by Buttikofer are probably this dark race, although *Z. demeryi* cannot be accepted any more than *Z. obsoleta* Butt., also based on a Liberian skin, as these are described from specimens long preserved in spirit and their determination cannot be accepted for certain (cf. Shelley, Birds of Africa, 1900, 2, p. 174)." However, when Shelley examined the types of both of these with Buttikofer in London they agreed that the specimens were "really specimens of *Z. senegalensis* with their true colors completely obliterated by the spirits in which they had been preserved; the latter specimen, apparently a younger bird, had suffered the worst."

Though Grant (Ibis, 1945, p. 5) gives the range of *leoninus* as "Sierra Leone," Sclater in the original description listed eight specimens from Sierra Leone and one from Nigeria, and Bannerman in 1948 also mentions the Nigeria one as belonging doubtfully to this race.

It appears that *leoninus* must be synonymized with *demeryi*, with *obsoleta* also a synonym, unless differences between the Sierra Leone and the Liberia birds are demonstrated. The range is Sierra Leone and Liberia, and probably eastward in the coastal areas to southern Nigeria.

Field notes.—The yellow white-eye was an uncommon bird at both the Firestone Plantation and at Ganta. It was more often

heard than seen, and its very pretty song was heard coming from the dense undergrowth, during June and July (H.B.).

Family NECTARINIIDAE¹

***Anthreptes collaris subcollaris* Hartlaub**

Nectarinia subcollaris Hartlaub, 1857, Syst. Orn. Westafr., p. 52—Senegal.

Ganta: 1 male adult; February 23, 1948.

Wing 48 mm.

This specimen compares well with two southern Nigeria (Ondo Province) males, and all three differ sharply from a series of *A. c. hypodilia* from southern Cameroon (River Ja).

Since the above was written, Chapin (1949, p. 83) has described the birds of Gabon, Cameroon and eastward as *A. c. somereni*, separated from *hypodilus* (type locality Fernando Po) on the basis of the smaller size, though he points out that in the eastern part of the range of *somereni* there is an increase in size. White (1950, p. 42) synonymized *somereni* with *hypodilus*, including in the latter the larger birds from Fernando Po, the smaller ones from West Africa, and the larger ones from the eastern Congo. This view can be defended, along with White's synonymizing of intermediate races in eastern Africa; but his subsequent action in naming the intermediate population between *hypodilus* of Cameroon and *subcollaris* of Upper Guinea is inconsistent. The races *hypodilus* and *subcollaris* are fairly well marked, and one would expect between them an area of intergradation, which Bannerman (1948, p. 241) has shown to exist. But it seems inadvisable to name this intergrading population. White gives its range as extending from Owerri westward, meeting that of *subcollaris* in the Gold Coast. We have a mountain Cameroon specimen that agrees well with Cameroon *hypodilus*, and we have two male specimens from Ifon, Ondo Province, Nigeria, that agree well with our Liberia male. I refer them to *subcollaris*.

Allen (1930, p. 719) records this species under the name *A. c. hypodilus*.

Field notes.—The collared sunbird was common both at Ganta and at the Firestone Plantation. It was seen in flowering trees in open country and in high forest, from January to July (H.B.).

¹The arrangement of species and the nomenclature are those of Delacour (1944). *Cinnyris*, *Cyanomitra* and *Chalcomitra* are included in *Nectarinia*.

Nectarinia cyanolaema subsp.

Ganta: 1 male subadult; January 24, 1948.

Wing 66; tail 50.

This specimen is molting from the immature to the adult plumage, acquiring the metallic throat, and half the bill has been shot away so that subspecific identification is impossible. The race one would expect is *M. c. magnirostris* Bates, described from Sierra Leone and said to be characterized by its more dusky plumage and longer, larger, and slightly less curved bill. At present this race is known definitely only from Sierra Leone and the adjacent French Guinea.

Nectarinia fuliginosa Shaw

Certhia fuliginosa Shaw, 1811, Gen. Zool., 8, pt. 1: 222—Malimba, Portuguese Congo.

Firestone Plantation: 1 male adult; November 25, 1947.

Wing 72 mm.

The plumage of the upper parts, especially the crown, is pale, faded brownish.

Field notes.—The carmelite sunbird, although uncommon at the Firestone Plantation and at Ganta, was seen visiting the flowering trees (H.B.).

Nectarinia adelberti adelberti Gervais

Cinnyris adelberti Gervais, 1834, Mag. Zool., 3: pl. 19—Senegal.

Firestone Plantation: 2 male adults; May 14, June 19, 1948.

Wing 61, 62 mm.

The May bird is changing its worn plumage (body and wings); the June bird is in fresh plumage, just completing its wing molt.

These specimens compare well with the plate of this form.

Field notes.—The buff-throated sunbird was uncommon at both the Firestone Plantation and Ganta. It was most often noted in thick second growth and was recorded from January to July (H.B.).

Nectarinia chloropygia subsp.

Firestone Plantation: 1 male adult; May 26, 1948.

Wing 47 mm.

Bannerman (1948, p. 188) records the subspecies *kempi* Sclater (type locality Bo, Sierra Leone) as the form of Liberia and the Ivory Coast, while a darker-bellied form, *N. c. chloropygia*, replaces

it in the area from the Gold Coast to southern Nigeria. However, the single Liberia specimen is slightly darker and duller on the belly than the single specimen of *chloropygia* (from Ondo Province, Nigeria) available for comparison. Thus it cannot be assigned to *kempi*. Possibly, despite its dark coloration, it is *chloropygia*; if so, a coastal westward extension of that form is indicated.

Nectarinia johannae fasciata Jardine and Fraser

Nectarinia fasciata Jardine and Fraser, 1852, Contr. Orn., p. 59—Abomey, Dahomey.

Firestone Plantation: 1 female(?); June 17, 1948.

Wing 65 mm.

The specimen agrees well with the description of the female of the species, which has been recorded from several localities in Liberia. It is a rare bird in collections (Bannerman, 1948, pp. 163, 164).

Nectarinia superba ashantiensis Bannerman

Cinnyris superbus ashantiensis Bannerman, 1923, Bull. Brit. Orn. Cl., 43: 7—Ashanti, Gold Coast.

Firestone Plantation: 1 male adult; May 22, 1948.

Ganta: 1 male adult, 1 female; January 27, February 16, 1948.

Wing: males, 67, 70; female, 65 mm.

Both males are in full plumage.

The only other records of this species for Liberia are the two made by the Harvard Expedition (Allen, 1930, p. 715).

Field notes.—The superb sunbird was uncommon about the Firestone Plantation, but common at Ganta (H.B.).

Family PLOCEIDAE

Ploceus castaneofuscus Lesson

Ploceus castaneofuscus Lesson, 1840, Rev. Zool., p. 99—Casamanse River, Senegal.

Firestone Plantation: 2 male adults; October 8, 20, 1948.

Ganta: 3 male adults, 2 male immatures, 1 female; February 15–April 10, 1948.

Wing: male adults, 78, 79, 81, 81, 82 mm.

None of these adults were molting their primaries.

There is considerable variation in the intensity of the chestnut color on the backs of this species.

Field notes.—The chestnut and black weaver was common at the Firestone Plantation, where nests were found in small trees in a swamp in October. In November a few birds were building their nests in small palms growing in a swamp, attaching their nests to the tips of the fronds. Only the females were seen to carry nesting material. In August and September a large colony was nesting in bamboos near a dwelling. At Ganta also the species was common, and a small colony was found nesting in palms in a swamp in March and April (H.B.).

***Ploceus tricolor tricolor* Hartlaub**

Hyphantornis tricolor Hartlaub, 1854, Jour. Orn., 2: 110—Sierra Leone.

Firestone Plantation: 1 adult (sex?), May 14, 1948.

Ganta: 3 male adults, 2 female adults; February 18–April 3, 1948.

Wing: males, 88, 90, 90; females, 87, 87 mm.

One February and the May bird are molting their remiges.

This series compares well with a Cameroon bird.

Allen (1930, p. 734) had but three records of this bird, listed under the name *Melanopteryx fusco-castaneus*. It is generally considered rare, but locally at least it is common, as Kemp in his account of the birds of Sierra Leone (Ibis, 1905, p. 243) recorded what was apparently a large colony at Bo. However, in Liberia Beatty saw only a few; at Ganta they were in the treetops in high forest.

***Ploceus cucullatus cucullatus* Müller**

Oriolus cucullatus Müller, 1776, Syst. Nat., Suppl., p. 87—Senegal.

Firestone Plantation: 2 male adults, 1 female immature; October 12, November 30, 1947, May 10, 1948.

Ganta: 3 male adults, 1 female immature; February 15–April 3, 1948.

Wing: male adults, 85, 87, 87, 88 mm.

Field notes.—The V-marked weaver was very common, nesting from September to July (H.B.).

***Ploceus brachypterus brachypterus* Swainson**

Ploceus brachypterus Swainson, 1837, Birds W. Afr., 1: 168, pl. 10—Senegal.

Firestone Plantation: 2 male adults, 1 male immature, 3 female adults; May 5-22, 1948.

Ganta: 2 male adults, 1 male immature, 1 female adult; January 26-April 5, 1948.

Wing: male adults, 76, 76, 76, 77; females, 70, 71, 72, 73 mm.

Field notes.—The spectacled weaver was uncommon at the Firestone Plantation in heavy second growth; a small colony including many immature birds was seen in July. At Ganta the species was common; a colony nesting in a cluster of bamboo in March failed to raise young, as the nests were continually blown down by the wind (H.B.).

Malimbus rubricollis bartletti Sharpe

Malimbus bartletti Sharpe, 1890, Cat. Bds. Brit. Mus., 13: 479—Wassaw, Gold Coast.

Ganta: 1 male adult, 1 female adult; February 18, 1948.

Wing: male, 108; female, 109 mm.

Neither bird is molting its primaries.

Compared with a male from Ifon, Ondo Province, Nigeria (presumably *nigeriae*, wing 109) both birds differ in the slightly darker crimson of the crown as described. *M. r. rubricollis* of Cameroon differs still more in its smaller size and considerably paler crown.

Field notes.—The Upper Guinea red-headed malimbe was uncommon at both Ganta and the Firestone Plantation. It was found in high forest trees (H.B.).

Malimbus nitens nitens Gray

Ploceus nitens Gray, 1831, Zool. Misc., 1: 7—Sierra Leone.

Firestone Plantation: 2 female adults; September 30, 1947.

Wing 82, 86 mm.

One specimen has the abdomen lightly tinged pale brownish. These two specimens have a slightly smaller wing than four Cameroon females (86, 87, 89, 90 mm.); one female from Ifon, Ondo Province, Nigeria, had a wing measurement of 80 mm.

Field notes.—The only Gray's malimbe seen were in heavy second growth, feeding in berry bushes (H.B.).

Quelea erythrops Hartlaub

Ploceus erythrops Hartlaub, 1848, Rev. Zool., 1848: pl. 109—São Thomé Island.

Firestone Plantation: 3 immature males, 1 female; April 21–May 6, 1948.

Each of the immature males has some pale red feathers in the side of the head.

***Coliuspasser macrourus macrourus* Gmelin**

Loxia macroura Gmelin, 1789, Syst. Nat., 1, pt. 2: 845—Dahomey, West Africa.

Firestone Plantation: 16 males; October 2–November 30, 1947, April 24–May 26, 1947.

Ganta: 2 males; February 3–March 9, 1948.

Wing: male adults, 77, 78, 78, 82, 83 mm.

Six of the seven males taken in the period from October 2 to November 30 are in somewhat worn breeding plumage; two May males have almost completed the molt into breeding plumage, but have the foreback, which will become yellow, still clad in worn, streaked, brown plumage. Males taken in February (one), March (one), April (five), and May (one) have the wings much as in the breeding plumage (but not worn) and otherwise are in the brown, streaked, off-season plumage. The single immature male, with brownish wings, is dated May 26.

Field notes.—About the Firestone Plantation the yellow-mantled whydah was common. Solitary pairs were seen in swamps with thick vegetation where nests were found in April. During May and June many parti-colored birds were seen, and males were getting their long tails. At Ganta small flocks were seen feeding in abandoned farms from January to April (H.B.).

***Spermestes cucullatus cucullatus* Swainson**

Spermestes cucullatus Swainson, 1837, Birds W. Afr., 1: 201—Senegal.

Firestone Plantation: 1 male adult, 1 female adult; April 24, May 31, 1948.

Ganta: 2 male adults, 2 female adults, 1 female subadult, 1 sex?; March 18, 27, 1948.

Wing: male adults, 47, 47, 48; female adults, 48, 48, 50 mm.

The subadults are molting into adult plumage.

Field notes.—The bronze mannikin was very common in the open country, where it often came to pools of water to bathe (H.B.).

Spermestes bicolor bicolor Fraser¹

Amadina bicolor Fraser, 1842, Proc. Zool. Soc. London, 1842: 145—Cape Palmas, Liberia.

Firestone Plantation: 1 female adult; April 22, 1948.

Ganta: 4 male subadults, 1 female adult; March 18, 1948.

Wing: female adults, 47, 51 mm.

The subadults are molting into adult plumage.

Field notes.—The black and white mannikin was found in large flocks in open country (H.B.).

Amauresthes fringilloides Lafresnaye

Ploceus fringilloides Lafresnaye, 1835, Mag. Zool., pl. 48—"India" (=Liberia).

Firestone Plantation: 1 female; May 21, 1948.

Ganta: 1 female, 1 sex?; February 26, 1948.

These specimens can be considered topotypes.

The May bird is in adult plumage; the two February birds are largely in adult plumage but still have a few brown feathers in the throat.

Field notes.—The magpie mannikin was found in small flocks in abandoned farms at Ganta from January to April (H.B.).

Nigrita canicapilla emiliae Sharpe

Nigrita emiliae Sharpe, 1869, Ibis, 1869: 384, pl. 11—Fantee, Gold Coast.

Firestone Plantation: 1 male; October 8, 1947.

Wing 64 mm.

Compared with the nominate race from Cameroon this is very distinct in having a gray (not whitish) rump; in almost lacking the white bordering the black of forehead and cheeks; in the greatly reduced white spotting in the wing; and in smaller size.

Field notes.—The gray-headed negro finch was seen only once, in the top of a tall tree in the savanna (H.B.).

Nigrita bicolor bicolor Hartlaub

Pytelia bicolor Hartlaub, 1844, Syst. Verzeich. Ges. Mus. Bremen, Voegel, p. 76—Gold Coast.

Firestone Plantation: 1 subadult (sex?); June 30, 1948.

Ganta: 2 male adults; April 3, 1948.

The subadult is molting into adult plumage.

¹ Bannerman (1949, p. 231) uses the specific name *poensis*.

Field notes.—At Ganta, in March and April, a few chestnut-breasted negro finches were noted in the tops of tall trees in secondary forests (H.B.).

Spermophaga haematina haematina Vieillot

Loxia haematina Vieillot, 1805, Ois. Chant., p. 102, pl. 67—Africa (Gold Coast).

Firestone Plantation: 1 female; June 6, 1948.

Wing 65 mm.

This bird is not molting its primaries.

Allen (1930, p. 741) recorded this species under the name *Spermospiza haematina leonia* (a synonym of *S. h. haematina*, according to Sclater, 1930, p. 778).¹ Our comparative material includes only the quite different *S. h. pustulata* from Cameroon.

Field notes.—The blue-billed weaver was common at the Firestone Plantation. A pair was nest-building in a low bush near a swamp in June (H.B.).

Pirenestes sanguineus coccineus Cassin

Pyrenestes coccineus Cassin, 1848, Proc. Acad. Nat. Sci. Phila., 4: 67—Sierra Leone.

Firestone Plantation: 3 male adults; September 16–October 20, 1947.

Ganta: 1 immature (sex?); March 19, 1948.

Wing: male adults, 61, 61, 62 mm. Width of lower mandible, male adults, 13.5, 16, 15 mm.

The measurements of the mandibles, less than 17.5 mm. wide, place these specimens in this form. The two smaller-billed males have the under parts paler and browner (less blackish brown) than the other; on the upper parts the difference is less pronounced, but the largest-billed bird is somewhat darker brown.

Field notes.—At the Firestone Plantation the crimson seed-cracker was seen in pairs, usually in the vicinity of swamps. Birds were seen carrying nesting material in November. A courtship performance was observed on several occasions. First the male was heard singing in a swamp thicket. Presently the pair of birds was dashing into the sky, the male trailing fifty feet in the rear and bursting into song at short intervals. In a combination of erratic and undulating flight the female traced a circular course with a diameter of some

¹ Also Bannerman, 1949, p. 272.

600 feet, back to the swamp. Occasionally the male alone would go dashing off into the blue sky, singing merrily.

At Ganta very few were seen in the period from January to April (H.B.).

***Ortygospiza*¹ *atricollis ansorgei* Ogilvie-Grant**

Ortygospiza ansorgei Ogilvie-Grant, 1910, Bull. Brit. Orn. Cl., 25: 84—Gunnal, Portuguese Guinea.

Firestone Plantation: 1 male adult; May 26, 1948.

Wing 53 mm.

Allen (1930, p. 742) had only one old record of this species, which he recorded binomially, for Liberia.

Compared with a specimen of *O. a. atricollis* from French Sudan, the present specimen differs in the more extensive black on the head, the fewer and finer bars on the breast, and the generally darker coloration above and below, as described for *ansorgei*. The race *ansorgei* has already been recorded as far east as Sierra Leone.

Field notes.—The quail-finch was not common. Several pairs were flushed from areas of short grass in open savanna. They could not be detected on the ground and flew very rapidly and erratically, uttering a soft call note.

***Estrilda astrild kemp* Bates**

Estrilda astrild kemp Bates, 1930, Bull. Brit. Orn. Cl., 51: 54—Buedo, Sierra Leone.

Ganta: 2 male adults; March 30, 1948.

Wing 45, 46 mm.

One of these birds is molting its remiges.

Allen (1930, p. 744) made the first and apparently the only previous record of this species for Liberia—a single female, shot by Dr. Linder at Bahratown on October 1—and recorded it as *E. a. occidentalis*. The present specimens, compared with *E. a. occidentalis* from Cameroon (topotypical birds from Fernando Po are not available) differ as described for *kemp* in having much less brown in the plumage. Bannerman (1949, p. 337) had already suggested that Liberia birds were *kemp*.

¹ Delacour (1943b, pp. 79, 84) considers this a subgenus of *Estrilda*. If Delacour's comprehensive view of the genus is accepted *Ortygospiza atricollis ansorgei* is preoccupied by *E. shelleyi ansorgei* Ogilvie-Grant, 1899, and the name *Estrilda atricollis gambiensis* Delacour, 1943, must be substituted.

Field notes.—This bird was seen occasionally at Ganta in small flocks of two dozen or so birds, in open spots feeding on grass seeds, from January to April (H.B.).

Estrilda melpoda melpoda Vieillot

Fringilla melpoda Vieillot, 1817, Nouv. Dict. Hist. Nat., 12: 177—West Coast of Africa.

Firestone Plantation: 2 male adults; April 19, 22, 1948.

Wing 48, 48 mm.

Neither bird was molting its remiges.

Field notes.—The orange-cheeked waxbills were common both at the Firestone Plantation and at Ganta. They were seen in very large flocks, numbering hundreds of birds, and were usually found in open grasslands. They fed actively in the early morning and the late afternoon (H.B.).

Vidua macroura Pallas

Fringilla macroura Pallas, 1764, Adumbrat. in Vroeg's Cat. no. 144, p. 3—"East Indies" (=Angola).

Firestone Plantation: 7 males, 4 females, 2 sex?; April 21–May 14, 1948.

The five males taken from April 21 to May 10 are in mixed black and streaked plumage on the upper parts, and the long tail feathers are less than half grown; another May 10 bird and one taken on May 26 are in practically full plumage, but the tail has not yet reached its full length.

Field notes.—The pin-tailed whydah was recorded at both Ganta and Firestone Plantation. Large flocks were noted throughout the year. In the field, males were noted as growing their long tail feathers in the period from May to July (which corresponds with the specimens). About April the males commenced to select females and by June little groups consisting of one or two males and perhaps a dozen females establish territories. These territories were vigorously defended against intruding males (H.B.).

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